

Iowa Immunization Registry Information System (IRIS)

HL7 Implementation Guide

Local specifications for HL7 data exchange with IRIS

Version 2.4

Last updated October 2019



IRIS HL7 Implementation Guide

Table of Contents:

IRIS.....	3
Scope of This Document.....	3
References.....	3
Health Level Seven (HL7) Standard	4
IRIS HL7 Implementation Guide	5
HL7 Message Types	5
VXU - Unsolicited Vaccination Record Update.....	5
VXQ - Query for Vaccination Record (HL7 2.4)	6
VXR - Response to Vaccination Query Returning Record (HL7 2.4)	6
VXR - Message Detail	7
VXX - Response to Vaccination Query - Multiple Matches (HL7 2.4)	8
QCK - Query General Acknowledgment – Returning No Matches (HL7 2.4)	9
QBP – Query by Parameter (HL7 2.5.1)	10
RSP – Response to Query by parameter (HL7 2.5.1)	10
ACK - General Acknowledgment	11
Message Control Segments	17
MSH – Message Header Segment	17
MSA – Message Acknowledgment Segment	18
ERR – Error Segment (HL7 2.4).....	19
ERR – Error Segment (HL7 2.5.1).....	20
QAK – Query Acknowledgment Segment.....	21
QRD – Query Definition Segment (HL7 2.4).....	21
QRF – Query Filter Segment (HL7 2. 4)	22
Patient Administration Message Segments.....	23
PID – Patient Identification Segment.....	23
PD1 – Patient Additional Demographic Segment.....	25
NK1 – Next of Kin/Associated Parties Segment	25
ORC – Order Request Segment (HL7 2.5.1 messages)	26
RXA – Pharmacy/Treatment Administration Segment.....	27
RXR – Pharmacy/Treatment Route Segment.....	30
OBX – Observation/Result Segment	31
HL7 VXU Message Examples.....	37
HL7 QBP/VXQ Message Examples.....	42
Data Exchange Specifications for IRIS	47
Real Time Transfer	50
Batch Transfer.....	50
Appendix A - HL7 Data Types.....	54
Appendix B - HL7 Tables	55
Appendix C – Vaccine Codes	68

IRIS HL7 Implementation Guide

IRIS

Thank you for your interest in Health Level Seven (HL7) electronic data exchange with IRIS. Getting timely and accurate immunization data into IRIS is important for provider organizations and patients. IRIS is interested in finding the least burdensome method for provider organizations to submit data to IRIS and to receive back meaningful data on patient histories and forecasts for upcoming immunizations.

Timely data submission to IRIS benefits providers and the patients they serve by making complete immunization records accessible through the system as soon as possible. IRIS staff will work with the provider organization to identify the data exchange method, format, and frequency making the most sense for the provider organization. IRIS is designed to send and receive real-time or batch data submission.

Standardized HL7 messaging is the preferred format for exchanging data with IRIS. IRIS is designed to accept HL7 messages through a variety of methods. The preferred data exchange method is real-time messaging through the web service. HL7 batch messages uploaded through the IRIS User Interface is also a valid data exchange method.

Note: Throughout this document HL7 2.5.1 refers to the local (Iowa) implementation of the CDC HL7 2.5.1 (October 2014) Guide.

Scope of This Document

This HL7 Implementation Guide covers the format and content requirements for sending HL7 messages to IRIS and receiving back HL7 messages with patient history and forecast information. The guide represents the local (Iowa) implementation of the CDC's HL7 2.5.1 Implementation Guide (October 2014).

This document specifies how HL7 file messages are constructed for the purposes of IRIS. It covers only a small subset of the very extensive HL7 standard. Messages constructed from the guidelines in this document will fall within the HL7 standard for immunization specific messages. Construction and submission of other HL7 messages are beyond the scope of this document.

References

- The National Immunization Program within the Center for Disease Control (<http://www.cdc.gov/vaccines/>) has published an Implementation Guide for Immunization Data Transactions using Version 2.5.1 of the HL7 Protocol (Implementation Guide 1.5, October 2014) with the purpose of keeping the use of HL7 (www.hl7.org) for immunization data as uniform as possible. This document is HL7 2.5.1 Version 1.5 (October 2014) compliant which can be found at <https://www.cdc.gov/vaccines/programs/iis/technical-guidance/downloads/hl7guide-1-5-2014-11.pdf>

Health Level Seven (HL7) Standard

The ANSI HL7 standards are widely used for data exchange in the health care industry. The full standard is quite lengthy, covering a variety of situations in patient care and health care finance. No single application is likely to use all of its content. The CDC has worked with Immunization Information Systems (IISs) to create a set of HL7 messages permitting the exchange of immunization data. This document covers the subset of HL7 being used for patient and immunization records exchanged between IRIS and outside systems.

- The basic unit transmitted in an HL7 implementation is the **message**.
- Messages are made up of several **segments**, each of which is one line of text, beginning with a three-letter code identifying the segment type.
- Segments are in turn made up of several **fields** separated by a delimiter character. Delimiters can be defined by the user in MSH-2, which is the second field of the MSH segment. The required delimiters for immunization messages are:

Delimiter:	Definition/Meaning:
<CR> (Carriage Return)	Segment terminator
(Pipe)	Field separator
^	Component separator
&	Sub-component separator
~	Repetition separator
\	Escape character

The details of how HL7 messages are constructed, for IRIS purposes, will be explained later in this document.

The example below shows the essentials of what a VXU message might look like. In this example, a message is being sent on behalf of Valley Clinic with a provider organization code of 12345 to IRIS. The message consists of three segments.

```
MSH|^~\&||12345^VALCLIN||IRIS^^^^^^|20110201||VXU^V04|682299|P^|2.3.1^^||AL
PID|||79928^^^^PI|A5SMIT0071^^^^^^|SMITH^MARY^T^^^^^^|JOHNSON^^^^^^^^|20101212|F||
|
RXA|0|999|20110201|20110101|03^MMR II^CVX|0.5
```

- The Message Header segment (**MSH**) identifies the owner (VALLEY CLINIC) of the information being sent and the receiver (IRIS). It also identifies the message as being of type **VXU^V04**. The VXU^V04 is an Unsolicited Vaccination Record Update, which is one of the message types defined by HL7.
- The Patient Identification segment (**PID**) gives the patient's name (MARY T SMITH), birth date (20101212, in YYYYMMDD format), and other identifying fields.
- The Pharmacy Administration segment (**RXA**) indicates a MMR II vaccine, with CVX code of 03, was administered on February 1, 2011 (formatted as 20110201). Many fields are optional and this example may have more information included in it. Some segments can be repeated within a single message. In this example, the message could have included a second RXA segment to record another immunization given.

IRIS HL7 Implementation Guide

HL7 does not specify how messages are transmitted. It is flexible enough to be used for both real-time interaction and batches (150MB maximum file size). The standard defines file header and file trailer segments, as well as batch header and batch trailer segments used when a number of messages are gathered into a batch for transmission as a file.

HL7 Message Types

IRIS supports several message types for sending and receiving immunization data to and from IRIS depending on the HL7 implementation guide being used. The below tables reference HL7 2.4 and HL7 2.5.1 formatted messages. If interested in sending HL7 2.3.1 values, please contact the IRIS Help Desk at 1-800-374-3958. The segments used to construct each message type are defined below.

VXU - Unsolicited Vaccination Record Update

VXU messages should be used for sending patient demographic and immunization data. Please see the HL7 VXU Messages Examples section for proper VXU formatted messages.

Segment	Description	IRIS Usage	Comment
MSH	Message Header	R	Every VXU message begins with an MSH segment.
PID	Patient Identification	R	Every VXU message has one PID segment.
PD1	Patient Additional Demographic	RE	Every VXU message can have one PD1 segment.
NK1	Next of Kin	RE	Multiple responsible persons can be sent with a VXU message.
PV1	Patient Visit	O	Every VXU message can have one PV1 segment.
ORC	Order Request	R	Every HL7 2.5.1 formatted VXU message must have at least one ORC segment.
RXA	Pharmacy/Treatment Administration	R	Every VXU message must have at least one RXA segment.
RXR	Pharmacy/Treatment Route	RE	Every VXU message can have at least one RXR segment.
OBX	Observation/Result	RE	Every VXU message can have at least one OBX segment.
NTE	Notes	O	Every VXU message can have at least one NTE segment.

VXQ - Query for Vaccination Record (HL7 2.4)

For querying IRIS for a complete patient vaccination record and forecast.

Segment	Description	IRIS Usage	Comment
MSH	Message Header	R	Every VXQ message begins with an MSH segment.
QRD	Query Definition Segment	R	Every VXQ message has one QRD segment.
QRF	Query Filter Segment	R	Every VXQ message has have one QRF segment.

Note: For real time data exchange, a VXQ message must contain |2.4^^| in MSH-12. For a VXQ message, the MSH-9 field must contain |VXQ^V01| and the segments must be in the following sequence order:

```
MSH|^~\&||12345||IRIS^^^|20110701||VXQ^V01|0000001|P^|2.4|||AL
QRD|20190701|R|I|01|||5^RD|725^JONES^JOE^L^^^^^CHMC^^^^MRN|VXI^VACCINE
INFORMATION^HL700048|IRIS^^^|
QRF|IRIS^^^|||777777777~20101205~~~~Taylor^Nicole^R^~~~~
```

VXR - Response to Vaccination Query Returning Record (HL7 2.4)

For querying IRIS for a complete patient vaccination record and forecast.

Segment	Description	IRIS Usage	Comment
MSH	Message Header	R	Every VXR message begins with an MSH segment.
MSA	Message Segment Acknowledgement	R	Every VXR message has one MSA segment.
QRD	Query Definition Segment	R	Every VXR message has one QRD segment.
QRF	Query Filter Segment	R	Every VXR message has one QRF segment.
PID	Patient Identification Segment	R	Every VXR message has one PID segment.
PD1	Additional Demographics	RE	Every VXR message has one PD1 segment.
NK1	Next of Kin	RE	Multiple responsible persons can be sent with a VXR message.
RXA	Pharmacy/Treatment Administration	RE	For each immunization on the patient record, IRIS will return one RXA segment.
RXR	Pharmacy/Treatment Route	RE	For each immunization on the patient record, IRIS may return one RXR segment.
OBX	Observation/Result	RE	For each immunization on the patient record, IRIS may return OBX segments.

When a patient has been uniquely identified (there is only one 'match' to the query), the response to the query is a VXR^V03 generated message and sent back to the querying organization.

IRIS will only return eligible vaccines. IRIS will not report vaccines ineligible due to age restrictions, contraindications or other such rules. IRIS will evaluate vaccines according to the ACIP schedule.

VXR - Message Detail

In addition to supplying the querying organization with patient specific demographic and immunization data (contained in the above segments), the VXR message also specifies immunization forecasting information, under 'Observation/Result Vaccines Due Next'. This information is supplied by generating five OBX segments per one vaccine recommendation. The set ID (OBX-1) for each OBX triplet, will be the sequential set number uniquely identifying the OBX set for an individual recommended vaccine. IRIS will report the Vaccination Schedule in the OBX segments through the specification of the LOINC code 30979-9 (Vaccines Due Next) and its sub-components in OBX-3. IRIS requires specification of OBX-5 when OBX-3 is specified and valid. Furthermore, IRIS has superimposed a CE data type on the OBX-5 field. The corresponding observation values will be specified in OBX-5. Combinations are as follows:

OBX-03	OBX-05
30979-9	HL70292 (Codes for vaccines administered CVX)
30979-9&30980-7	Date Vaccine Due (IRIS provides date recommended)
30979-9&30973-2	Next dose of vaccine due
30979-9&30981-5	Earliest date to give (IRIS provides)
30979-9&30982-3	Reason applied

Below, is an example of what a recommendation might look like in a VXR message response (see **bolded** OBX segments below).

```
MSH|^~\&|IRIS^^|IRIS^^|12345|20111220||VXR^V03|0000001|P^|2.4^^|AL
MSA|AA|0000001||0||0^Message Accepted^HL70357^^
QRD|20111220|R|I|000000001||25^RD^^^^^|SMITH^MARY^T^^^^^^^^^^|VXI^VACCINE
INFORMATION^HL700048^^|IRIS^^^^^^|1
QRF|IRIS^^|~20101212~~~~~
PID||7065570^^^PI||SMITH^MARY^T^^^^^|20101212|F||
PD1|02^^^^^|A
PV1|R|
RXA|0|999|20110201|20110201|01^DTP^CVX^90701^DTP^CPT|1.0||01|
OBX|1|CE|38890-0^COMPONENT VACCINE TYPE^LN|1|01^DTP^CVX^90701^DTP^CPT|F|
OBX|2|NM|38890-0&30973-2^Dose number in series^LN|1|1|F|
RXA|0|0|20101212|20101212|998^No Vaccine Administered^CVX|999|
OBX|1|CE|30979-9^Vaccines Due Next^LN^^|1|107^DTaP, NOS^CVX^DTaP,
NOS^CPT|F|
OBX|2|TS|30979-9&30980-7^Date Vaccine Due^LN^^|1|20120412|F|
OBX|3|NM|30979-9&30973-2^Vaccine due next dose number^LN^^|1|2|F|
OBX|4|TS|30979-9&30981-5^Earliest date to give^LN^^|1|20120301|F|
OBX|5|CE|30979-9&30982-3^Reason applied by forecast logic to project this
vaccine^LN^^|1|^ACIP schedule|F|
```

VXX - Response to Vaccination Query - Multiple Matches (HL7 2.4)

For querying IRIS for a complete patient vaccination record and forecast.

Segment	Description	IRIS Usage	Comment
MSH	Message Header	R	Every VXX message begins with an MSH segment.
MSA	Message Segment Acknowledgement	R	Every VXX message has one MSA segment.
QRD	Query Definition Segment	R	Every VXX message has one QRD segment.
QRF	Query Filter Segment	R	Every VXX message has one QRF segment.
PID	Patient Identification Segment	R	Every VXX message has one PID segment.
NK1	Next of Kin	RE	Multiple responsible persons can be sent with a VXX message.

When a query results in multiple patient matches, the VXX message response is generated. The VXX contains multiple patients and their demographic information but does not contain their vaccination information.

The number of matches IRIS generates will depend on the value specified in the first component of the incoming QRD-7 Quantity Limited request field. IRIS will interpret the quantity specified in this field as the maximum number of patient matches the requester desires. For instance, the value '5' would indicate the provider organization wants at most 5 patient matches to be sent back.

IRIS limits the number of patient matches sent back to a maximum of 10. The value 0 indicates the provider organization wants the maximum number of patient matches sent back. A value of 10 or more in QRD-7 will again return at most the IRIS maximum of 10 patient matches.

If a query results in 100 matches and the original quantity specified in QRD-7 was 10, then IRIS generates 10 PID segments (and if applicable, associated NK1 segments) in the VXX response message.

The following scenarios outline when a VXX message will be sent back when multiple patient matches are found.

Scenario 1:

The following paragraph holds true, assuming the VXQ has 0 in QRD-7 (meaning the provider organization wants the maximum number of patients sent back).

If IRIS matches 10 patients and 8 of those patients have locked records, then only 2 patients will be sent back in the VXX message; the remaining 8 will not be sent back. The QRD-12 field (in the VXX message) will reflect the total number of matches found in IRIS (10 in our example) and the querying organization will need to assume the 8 patients

were not returned had locked records.

VXQ Example:

```
MSH|^~\&||12345||IRIS|201201011235||VXQ^V01|001|P^|2.4||AL
QRD|20120101|R|I|01|||0^RD|01^SALAMI^STUART^S^^|VXI^VACCINE
INFORMATION^HL700048|^IRIS||0|
QRF|IRIS||||~19900607~|
```

VXX Example:

```
MSH|^~\&||IRIS||QUERYINGORG|201201011235||VXX^V02|001|P^|2.4||AL
MSA|AA|001||0||0^Message Accepted^HL70357^^^
QRD|20120101|R|I|01|||0^RD|01^SALAMI^STUART^S^^|VXI^VACCINE
INFORMATION^HL700048|^IRIS^^^||10|
QRF|IRIS||||~19900607~|
PID||123^^^^SR~^^^^PI^||SALAMI^BRAD^S^^|^^^^^|19900607|M|^^^^^|||
PID||456^^^^SR~^^^^PI^||SALAMI^CHARLES^S^^|^^^^^|19900706|M|^^^^^|||
NK1|1|SALAMI^CHARLES^|SEL^SELF^HL70063|123STREETADDRESS^CITY^IA^55555^USA^^^|
```

Scenario 2:

If IRIS matches one or more patients who have locked records, then a QCK is generated. The QCK message will be comprised of the MSH, MSA and QAK segments. The MSA-01 field will have a value of 'AE' (Application Error). The MSA-3 field will display a message similar to "Patient has an 'Record Lock Indicator' indicator = Yes." MSA-6 text will display, "Record not released".

VXQ Example:

```
MSH|^~\&||12345||IRIS|20120301||VXQ^V01|0000001|P^|2.4||AL
QRD|20120301|R|I|000000001|||0^RD|^SMITH^MARY^T |VXI^VACCINE
INFORMATION^HL700048|IRIS|
QRF|IRIS||||~20101212~~~~Johnson~~~~|
```

QCK Example:

```
MSH|^~\&|IRIS^^|IRIS^^|12345|20111220||
QCK|0000001|P^|2.4^^||AL
MSA|AE|0000001|Patient has an 'Record Lock Indicator' indicator =
Yes|0||500^Record not released^HL70357^^^
```

QCK - Query General Acknowledgment – Returning No Matches (HL7 2.4)

For querying IRIS for a complete patient vaccination record and forecast.

Segment	Description	IRIS Usage	Comment
MSH	Message Header	R	Every QCK message begins with an MSH segment.
MSA	Message Segment Acknowledgement	R	Every QCK message has one MSA segment.
QAK	Query Acknowledgement Segment	R	Every QCK message has one QAK segment.

A QCK message is generated when IRIS has processed the query message, but no match was found to the query parameters in the database. IRIS does not generate this

response message for anything other than no match found. Error messages are reported through the use of the ACK response message; therefore, the optional [ERR] segment will never be generated for the QCK response message.

QCK Example:

```
MSH|^~\&|IRIS IIS|IRIS||12954|20191008||QCK^Q02^QCK_Q02|20624101|P|2.4
QCK|0000001|P^|2.4^^|AL
QAK|20624101|NF
```

QBP – Query by Parameter (HL7 2.5.1)

For querying IRIS for a complete patient vaccination record and forecast.

Segment	Description	IRIS Usage	Comment
MSH	Message Header	R	Every QBP message begins with an MSH segment.
QPD	Query Parameter Definition	R	Every QBP message has one QPD segment.
RCP	Response Control Parameter Segment	R	Every QBP message has have one RCP segment.

Note: For real time data exchange, a QBP message must contain |2.5.1| in MSH-12. For a QBP message, the MSH-09 field must contain |QBP^Q11^QBP_Q11| and the segments must be in the following sequence order:

```
MSH|^~\&||12345||IRIS|20191002||QBP^Q11^QBP_Q11|0001|P^|2.5.1||||AL||||Z44|
QPD|Z44^Request Evaluated History and
Forecast^HL70471|65687||SMITH^MARY|J41L10^^^AA^MR|19861017|F|123 Fake
St^^MARSHALLTOWN^IA^50158-2758^USA^P^^MARSHALL|(641)999-999^P^PH||
RCP|I|1^RD&records&HL70126|R^Real Time^HL70394
```

RSP – Response to Query by parameter (HL7 2.5.1)

For querying IRIS for a complete patient vaccination record and forecast. Please see the HL7 QBP/VXQ Message Examples section for a RSP formatted message example.

Segment	Description	IRIS Usage	Comment
MSH	Message Header	R	Every RSP message begins with an MSH segment.
MSA	Message Segment Acknowledgement	R	Every RSP message has one MSA segment.
QAK	Query Acknowledgement Segment	R	Every RSP message has one QAK segment.
QPD	Query Parameter Definition	R	Every RSP message has one QPD segment.
PID	Patient Identification Segment	R	Every RSP message has one PID segment.

PD1	Additional Demographics	RE	Every RSP message has one PD1 segment.
NK1	Next of Kin	RE	Multiple responsible persons can be sent with a RSP message.
ORC	Order Request	RE	For each immunization on the patient record, IRIS will return one ORC segment.
RXA	Pharmacy/Treatment Administration	RE	For each immunization on the patient record, IRIS will return one RXA segment.
RXR	Pharmacy/Treatment Route	RE	For each immunization on the patient record, IRIS may return one RXR segment.
OBX	Observation/Result	RE	For each immunization on the patient record, IRIS may return OBX segments.

When a patient has been uniquely identified (there is only one 'match' to the query), the response to the query is a RSP generated message and sent back to the querying organization.

IRIS will only return eligible vaccines. IRIS will not report vaccines ineligible due to age restrictions, contraindications or other such rules. IRIS will evaluate vaccines according to the ACIP schedule.

RSP - Message Detail

In addition to supplying the querying organization with patient specific demographic and immunization data (contained in the above segments), the RSP message also specifies immunization forecasting information, under 'Observation/Result Vaccines Due Next'.

This information is supplied by generating several OBX segments per one vaccine recommendation. The set ID (OBX-1) for each OBX triplet will be the sequential set number uniquely identifying the OBX set for an individual recommended vaccine. IRIS will report the vaccination schedule in the OBX segments through the specification of the LOINC code 30979-9 or 30956-7 (Vaccines Due Next) depending on the implementation version the provider is using and its sub-components in OBX-3. IRIS requires specification of OBX-5 when OBX-3 is specified and valid. Furthermore, IRIS has superimposed a CE data type on the OBX-5 field. The corresponding observation values will be specified in OBX-5.

ACK - General Acknowledgment

To acknowledge to the sender a message has been received.

Segment	Description	IRIS Usage	Comment
MSH	Message Header	R	Every ACK message begins with an MSH segment.
MSA	Message Segment Acknowledgement	R	Every ACK message has one MSA segment.

ERR	Error	R	Every ACK message has one ERR segment.
-----	-------	---	--

ACK – Message Detail

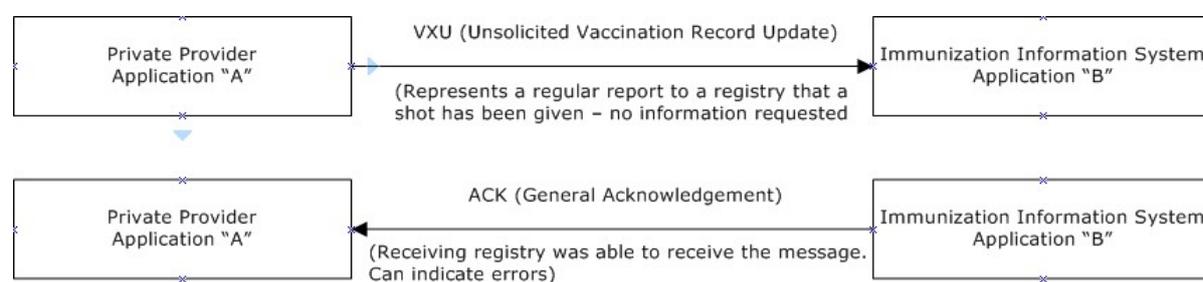
ACK messages are generated for message rejections and for informational error messages. Three conditions result in message rejection are:

1. Sequencing (i.e. a PID segment must follow an MSH segment.)
2. Segment required fields contain no data.
3. Segment required fields contain invalid data.

Recommendation:

It is preferred demographic information be sent in a VXU message whenever possible, as this message type accommodates BOTH immunization information and demographic update information.

When a VXU^V04 (Unsolicited Vaccination Record Update) message type is sent with an RXA segment (immunization information), a check is done to verify if the patient exists in IRIS or not. If the patient already exists in IRIS, the demographic update will occur (if all other update business rules apply). If the patient is new to IRIS, then the patient will be added to the database.



An ACK is also generated when an informational error message has occurred, but it has not resulted in message rejection (i.e. NK1 segment contains no last name). In this case, the segment is ignored but the remainder of the message is processed. An ACK message is generated with a message informing the sender of the problem. The error message in the text does not include "Message Rejected". The ACK contains the MSH, MSA and ERR segments.

Message Segments: Field Specifications and Usage

Notes:

- Each segment is one line of text ending with the carriage return/line feed (CR/LF) character. The CR/LF character is needed so the HL7 messages are readable and printable. The messages may appear somewhat cryptic due to the scarcity of white space. (The standard has provisions for inclusion of binary data, but IRIS will not use these features.)
- Square brackets [] enclose optional segments and curly braces {} enclose segments can be repeated.

- Any number of NK1 segments could be included in the message.
- The full HL7 standard allows additional segments within these message types, but they are not used by IRIS. In order to remain compliant with the HL7 standard, their use will not result in an error, but the recipient can ignore the content of the message. The segments documented here are sufficient to support the principal IRIS functions of storing data about patients and immunizations.

HL7 Segment Structure

Each segment consists of several fields separated by `|`, which is the field separator character. The tables below define how each segment is structured and contain the following columns.

1. SEQ	The ordinal position of the field in the segment. Since IRIS does not use all possible fields in the HL7 standard, these are not always consecutive.
2. LEN	Maximum length of the field
3. DT	HL7 data type of the field. See below for definition of HL7 data types.
4. R/SE	R means required by HL7, and SE means strongly encouraged for IRIS. Blank indicates an optional field.
5. RP/#	Y means the field may be repeated any number of times, an integer gives the maximum number of repetitions, and a blank means no repetition is permitted.
6. TBL#	Number of the table giving valid values for the field.
7. ELEMENT NAME	HL7 name for the field.

HL7 Data Types

Each field has an HL7 data type. Appendix A of this document lists and defines the HL7 data types needed for IRIS. The elemental data types Numeric (NM) and String (ST) consist of one value, while some data types, such as Extended Person Name (XPN) are composites.

Delimiter Characters

Field values of composite data types consist of several components separated by the **component separator**, `^`. When components are further divided into sub-components, these are separated by the **sub-component separator**, `&`. Some fields are defined to permit repetition separated by the **repetition character**, `~`. When these special characters need to be included within text data, their special interpretations are prevented by preceding them with the **escape character**, `**`.**

```

MSH|^~\&| ...
XXX|field1|component1^component2^subcomponent3.1&subcomponent3.2^component4|...
YYY|repetition1~repetition2| ...
ZZZ|data includes escaped \|\` special characters| ...

```

In the example above, the Message Header segment uses the field separator, `|`, immediately after the MSH code identifies the segment. This establishes what character

serves as the field separator throughout the message. The next field, the four characters '^~\&', establishes, in order, the component separator character, the repetition character, the escape character, and the sub-component separator character will apply throughout the message. The hypothetical XXX segment includes field 1 with no internal structure, but the next field has several components separated by '^', and the third of these is made up of two sub-components separated by '&'. The hypothetical YYY segment's first field permits repetition, in this example the two values 'repetition1' and 'repetition2'. The hypothetical ZZZ segment's field has a text value including the characters '|~', and these are escaped to prevent their normal structural interpretation.

In IRIS, sub-components, repetition and text values requiring the escape character will be rare. Components within fields are common, since names and addresses are represented this way. HL7 permits the use of other delimiters besides the recommended ones and the delimiters used in each message are given in the Message Header segment. *IRIS will always use the recommended delimiters when sending files and requires their use for files received.*

Rules for Sending Systems

The following rules are used by sending systems to construct HL7 messages.

- Encode each segment in the order specified in the message format. Begin the segment with the 3-letter segment ID (for example RXA).
- Precede each field with the data field separator ('|').
- Use HL7 recommended encoding characters ('^~\&').
- Encode the data fields in the order given in the table defining segment structure. Encode the data field according to its HL7 data type format.
- Since later fields in the segment are encoded by ordinal position, fields not present do not reduce the number of field separators in the segment. For example, when the second and third fields are not present, the field separators maintain the ordinal position of the fourth field: |field1|||field4
- Data fields present but explicitly null are represented by empty double quotes "". This is significant when updates are sent to existing records, because an empty field (shown as two field separators with nothing between them) will not alter the field in IRIS. To delete a value, put the "" pair in place of the field.
- Trailing separators may optionally be omitted. For example, |field1|field2|||| is equivalent to |field1|field2, when field3 and subsequent fields are not present.
- End each segment with the segment terminator (always the carriage return character, ASCII hex 0D).

Rules for Receiving Systems

The following rules are used by receiving systems to process HL7 messages.

- Treat data segments expected but not present as if all data fields in the segment were not present.
- Require use of HL7 recommended Field Separator |, and Encoding characters ^~\& for encoding messages.
- Ignore any data segment included but not expected, rather than treating it as an

error. The HL7 message types used by IRIS may include many segments besides the ones in this document, and IRIS ignores them. IRIS will not send messages with segments not documented in this specification, but reserves the right to specify more segments at a later date. The rule to ignore unexpected segments facilitates this kind of change.

- Ignore data fields found but not expected within a segment.

Message Segments

The message segments below are needed to construct message types used by IRIS. Each segment is given a brief description excerpted from the HL7 standard. The tables define what fields make up each segment. Since IRIS does not use all the fields HL7 defines, there are sometimes gaps in the ordinal sequence of fields. Following HL7 rules, the gaps do not diminish the number of field separators within the segment. For example, if the second and third fields in a segment are not present, their field separators remain in order to indicate the next field present is the fourth: field1|||field4.

Master Field List

The Master Field List is a single correlated table, listing every informational field accepted by IRIS. For additional details on each field refer to the documentation under the segment and field description.

Entity	Field	R/SE	HL7
Patient	Patient Identifier List (Internal ID)	R	PID-3
Patient	Patient Name	R	PID-5
Patient	Mother's Maiden Name	SE	PID-6
Patient	Date of Birth	R	PID-7
Patient	Sex (Gender)	R	PID-8
Patient	Patient Alias Name(s)		PID-9
Patient	Race	SE	PID-10
Patient	Patient Address	R	PID-11
Patient	Phone number – home	SE	PID-13
Patient	Ethnic Group	SE	PID-22
Patient	Multiple Birth Indicator		PID-24
Patient	Birth Order		PID-25
Patient	Patient Death Date		PID-29
Patient	Publicity Code		PD1-11
Patient	Immunization registry status		PD1-16
Patient	Immunization registry status effective date		PD1-17
Patient	Publicity Code effective date		PD1-18
Next-of-Kin	Set ID – NK1	R	NK1-1
Next-of-Kin	Name	R	NK1-2
Next-of-Kin	Relationship	R	NK1-3
Next-of-Kin	Address	SE	NK1-4
Next-of-Kin	Phone Number	SE	NK1-5
Vaccination	Give Sub-ID Counter	R	RXA-1
Vaccination	Administration Sub-ID Counter	R	RXA-2
Vaccination	Date/Time Start of Administration	R	RXA-3
Vaccination	Date/Time End of Administration	R	RXA-4

Entity	Field	R/SE	HL7
Vaccination	Administered Code	R	RXA-5
Vaccination	Administered Amount	R	RXA-6
Vaccination	Administration Notes		RXA-9
Vaccination	Administering Provider		RXA-10
Vaccination	Administered-at location	R	RXA-11
Vaccination	Substance Lot Number	SE	RXA-15
Vaccination	Substance Manufacturer Name	SE	RXA-17
Vaccination	Substance Refusal Reason		RXA-18
Vaccination	Completion Status		RXA-20
Vaccination	Action code-RXA		RXA-21
Vaccination	Route	R	RXR-1
Vaccination	Site	SE	RXR-2
Vaccination	Set ID - OBX	R	OBX-1
Vaccination	Value type	R	OBX-2
Vaccination	Observation Identifier	R	OBX-3
Vaccination	Observation sub-ID	R	OBX-4
Vaccination	Observation Value	R	OBX-5
Vaccination	Observation Result Status	R	OBX-11
Vaccination	Date/Time of the Observation	SE	OBX-14

Message Control Segments

Message control segments are used to define the characteristics of HL7 messages and to handle administrative functions such as queries.

MSH – Message Header Segment

The MSH segment defines the intent, source, destination, and some specifics about the syntax of a message.

SEQ	LEN	DT	R/SE	RP/#	TBL#	ELEMENT NAME
1	1	ST	R			Field Separator
2	4	ST	R			Encoding Characters
3		HD				Sending Application
4		HD	R			Sending Facility
6		HD				Receiving Facility
7		TS	R			Date/Time Of Message
9		M	R			Message Type Message
10	199	ST	R			Control ID
11		PT	R		0103	Processing ID
12		VID	R		0104	Version ID
15		ID	R		0155	Accept Acknowledgment Type
16		ID	R		0155	Application Acknowledgment Type
21		HD	R			Message Profile Identifier
22		XON				Sending Responsible Organization

Field Notes:

- MSH-1 Determines the field separator in effect for the rest of this message. IRIS requires the HL7 recommended field separator of `|`.
- MSH-2 This field contains the four characters in the following order: the component separator, repetition separator, escape characters and sub-component separator. IRIS requires `^~\&` (ASCII 94, 126, 92 and 38 respectively).
- MSH-3 The name of the sending application. When receiving, IRIS will ignore this field. When sending, IRIS will use `IRIS`. See MSH-4 and MSH-6 for the fields principally used to identify sender and receiver of the message.
- MSH-4 Identifies the owner of the immunization data being sent. This field contains the provider organization's Org Code who owns the immunization information. When sending, IRIS will use `IRIS` in this field. Contact the IRIS Help Desk at 1-800-374-3958 for the appropriate Org Code.

Note: Since there is the potential for sending files under an incorrect Provider Organization, IRIS requires all organizations to send the provider Org Code in MSH-4. This will allow IRIS to verify the owner of the immunization records.

- MSH-6 Identifies the message receiver. When sending, IRIS will use the Provider Organization Code assigned to the provider organization (referred to as 'Org Code').
- MSH-7 Date and time the message was created. See the [TS data type](#).
- MSH-9 This is a required field. This field contains the message type (see Table [0076](#)), trigger event (see Table [0003](#)), and the message structure ID for the message. For immunization messages, IRIS requires this field be populated with the value "VXU^V04^VXU_V04". For querying messages, IRIS requires this field be populated with the value "QBP^Q11^QBP_Q11".
- MSH-10 This is a required field. Message rejection will result if nothing is received in this field. The message control ID is a string (which may be a number) uniquely identifying the message among all those ever sent by the sending system. It is assigned by the sending system and echoed back in the ACK message sent in response to identify any errors in the record. It is important to have this be an ID the provider can use to identify the submitted record.
- MSH-11 See Table [0103](#). The processing ID to be used by IRIS is 'P' for production processing.
- MSH-12 See Table [0104](#). This is a required field. For the parser, the version number is read in the first MSH segment of the file, will be the version assumed for the whole file. If there is no version number found in the first MSH segment, the message will be rejected and the file will not be processed.
- MSH-15 See Table [0155](#). This field controls whether an enhanced acknowledgement (ACK) is generated for the message being sent. This field is required with a value of 'AL'.
- MSH-16 See Table [0155](#). This field controls whether an application is generated in response to a message. This field is required with a value of 'AL'.
- MSH-21 The message profile contains information about the grammar, syntax and the expected usage for a particular message.
- MSH-22 If sent, the sending responsible organization name needs to match the exact name of the provider organization in IRIS.

MSA – Message Acknowledgment Segment

The MSA segment contains information sent by the IRIS to acknowledge an incoming message.

SEQ	LEN	DT	R/SE	RP/#	TBL#	ELEMENT NAME
1	2	ID	R		0008	Acknowledgement Code
2	199	ST	R			Message Control ID
3	80	ST				Text Message

Field Notes:

- MSA-1 See Table [0008](#). The acknowledgment code indicates the disposition of the message. This is a required field. IRIS generates an AA (Application Accept) meaning the message was processed and accepted normally. AE (Application Error) means an error prevented normal processing. An AR (Application Reject) means an error prevented normal processing or the message rejected due to invalid message type, invalid version, or invalid processing ID. An error message will be sent in the ERR segment in cases of an AE or AR.
- MSA-2 The message control ID is the unique ID sent by the sending system. This is a required field. It allows the sending system to associate each message with a response. In a response, this will be the same as the control sent in MSH-10 by the sending system.
- MSA-3 This optional field further describes an error condition. When a message has been rejected, IRIS generates "Message Rejection" as the first portion of the text describing the error message. Informational error messages will not contain "Message Rejection".

ERR – Error Segment (HL7 2.4)

The error segment (ERR) is used to add error comments to acknowledgment messages. If the message was rejected for functional reasons, this segment will locate the error and describe it using locally established codes.

SEQ	LEN	DT	R/SE	RP/#	TBL#	ELEMENT NAME
2	80	CM	R	Y	0357	Error code and location

Field Notes:

- ERR-2 See the Table [0357](#). This is a composite field with four components, ordered as follows:

<segment ID (ST)>^<sequence (NM)>^<field position (NM)>^<code identifying error (CE)>

The first component identifies the segment ID containing the error. The second component identifies the input file line number of the segment containing the error. The third component identifies by ordinal number the field containing the error. The fourth component identifies, by ordinal number, the field component containing the error (0 is used if not applicable) The remaining five components of the CE data type are not valued and their '^' separators are not generated. Error text is transmitted in field MSA- 3.

Example:

The NK1 segment is missing a mandatory field:

```

MSH|^~\&||IRIS||QUERYINGORG|20120201||VXQ^V01|001|P^|2.4||AL
MSA|AE|001|Invalid relationship code. Defaulting to
Guardian|3||102^Invalid data value^HL70357^^^
ERR||NK1^1^3^0

```

ERR – Error Segment (HL7 2.5.1)

The error segment (ERR) is used to add error comments to acknowledgment messages. If the message was rejected for functional reasons, this segment will locate the error and describe it using locally established codes.

SEQ	LEN	DT	R/S	RP/#	TBL#	ELEMENT NAME
2	18	ERL	RE			Error Location
3		CWE	R		0357	Error Code
4	1	ID	R		0516	Severity
5		CWE	RE		0533	Application Error Code
8		TX	RE			User Message

Field Notes:

ERR-2 This is a composite field with four components, ordered as follows:

```

<segment ID (ST)>^<sequence (NM)>^<field position
(NM)>^<code identifying error (CE)>

```

The first component identifies the segment ID containing the error. The second component identifies the input file line number of the segment containing the error. The third component identifies by ordinal number the field containing the error. The fourth component identifies, by ordinal number, the field component containing the error (0 is used if not applicable)

Example:

The patient name is a required segment:

```

MSH|^~\&||IRIS IIS4.12|IRIS|||20191009140409-
0500||ACK^V04^ACK|12345|P|2.5.1|||NE|NE|||Z23^CDCPHINVS|IRIS
MSA|AE|12345
ERR||PID^1^5^0|101^Required field missing^HL70357|E|6^Required
observation missing^HL70533||MESSAGE REJECTED - REQUIRED FIELD PID-5
MISSING.

```

ERR-3 See the Table [0357](#). Identifies the HL7 error code.

ERR-4 See the Table [0516](#). Identifies the severity of an application error. The error code is important in determining whether the message was processed with errors or rejected due to errors.

ERR-5 See the Table [0533](#). Identifies the specific error.

ERR-8 IRIS defined message. This is always provided by IRIS when more detailed information is available.

QAK – Query Acknowledgment Segment

SEQ	LEN	DT	R/SE	RP/#	TBL#	ELEMENT NAME
1	32	ST	R			Query Tag
2	2	ID	R		0208	Query response status
3		CE	R		0471	Message query name

Field Notes:

- QAK-1 For messages sent pre Implementation Guide 1.5, this field echoes back the value found in MSH-10 of the corresponding query message to IRIS. For messages sent post Implementation Guide 1.5, this field echoes back the value found in QPD-2 of the corresponding query message to IRIS.
- QAK-2 This field allows IRIS to return a precise response status. Refer to HL7 table [0208](#) for values.

Example:

```
MSH|^~\&|IRIS^^|IRIS^^||12345|20120421||QCK^|0000001|P^|2.4^^||AL
MSA|AA|0000001||0||0^Message Accepted^HL70357^^^
QAK|000000001|NF|Z34^Request Immunization History^HL70471
```

- QAK-3 This field contains the name of the query and will mirror back what is found in QPD-1. Refer to HL7 table [0471](#) for values.

QRD – Query Definition Segment (HL7 2.4)

This segment is used to define a query.

SEQ	LEN	DT	R/SE	RP/#	TBL#	ELEMENT NAME
1	26	TS	R			Query date/time
2	1	ID	R		0106	Query Format Code
3	1	ID	R		0091	Query Priority
4	10	ST	R			Query ID
7	10	CQ	R		0126	Quantity limited request
8	60	XCN	R	Y		Who subject filter
9	60	CE	R	Y	0048	What subject filter
10	60	CE	R	Y		What department data code
11	20	CM		Y		What data code value qualifier
12	1	ID				Query results level

Field Notes:

- QRD-1 Date the query was generated by the application program. IRIS requires this field and verifies a valid date is received. The minimum format of YYYYMMDD is required. A null/invalid value results in message rejection.
- QRD-2 Query/response format code. IRIS requires this field and only accepts a value of 'R'. A null/invalid value results in message rejection.
- QRD-3 Time frame in which the response is expected. IRIS requires this field and only accepts a value of 'I'. A null/invalid value results in message rejection.

- QRD-4 Unique identifier for the query assigned by the querying application. IRIS requires this field and null/invalid values result in message rejection. This field should match the value in field MSH-10.
- QRD-7 Maximum length of the response to be accepted by the requesting system. The 1st component is a numerical value, and the 2nd component accepts only the value 'RD' (i.e. |5^RD|). A null/invalid value in either sub-component results in message rejection. IRIS will interpret the units as the maximum number of patient matching records to be returned via a VXX response message.
- Note:** IRIS will return a maximum of 10 records per query message submitted. The value 0 or any number 10 or greater will result in the maximum of 10 matches returned by IRIS.
- QRD-8 Identifies the subject of the query or whom the inquiry is about. The 2nd component (last name) is required by IRIS. If the last name is missing (regardless if there are repeating full names after the first) it results in message rejection. IRIS supports repetition of this field.
- QRD-9 Describes the kind of information required to satisfy the request. IRIS requires this field and a value of 'VXI' must populate the 1st component. IRIS supports repetition of this field. Null/invalid values result in message rejection if the field does not repeat. If the field repeats there must be at least one value of 'VXI' to be valid.
- QRD-10 Identifies the 'what' department data code. IRIS requires this field and supports repetition of it. Null/invalid values will result in message rejection.
- QRD-11 Further refines the inquiry by data code qualifiers by providing a window or range. This is an optional and repeatable field, and takes the format:
- <first data code value (ST)>^<last data code value (ST)>
- QRD-12 Used to control level of detail in results. This field is optional and will be populated by IRIS with the total count of PID matches found in IRIS when query results in a VXX Response Message.

Example:

```
QRD|20120122|R|I|00000001|||25^RD|01^KENNEDY^JOHN^FITZGERALD^JR|VXI^VACC
INE INFORMATION^HL700048|^IRIS||20
```

QRF – Query Filter Segment (HL7 2. 4)

Used with the QRD segment to further refine the content of a query.

SEQ	LEN	DT	R/SE	RP/#	TBL#	ELEMENT NAME
1	20	ST	R	Y		Where subject filter

5	60	ST	R			Other query subject filter
---	----	----	---	--	--	----------------------------

Field Notes:

- QRF-1 Identifies the department, system or subsystem to which the query pertains. IRIS requires this field. A null/invalid value results in message rejection.
- QRF-5 This field is used by registries to transmit a search "key". IRIS requires this field and does not support repetition. The 2nd component (patient birth date) is required by IRIS. A null/invalid format results in message rejection. Format is in YYYYMMDD.

The keys within QRF-5 are ordered and separated by the repeat delimiter '~'. If a key has no value, it is left empty with the repeat delimiter holding its place. The order of data keys is as follows:

<patient Social Security Number>~<**patient birth date**>~<patient birth state>~<patient birth registration number>~<patient Medicaid number>~<mother's name last^first^middle>~<mother's maiden name>~<mother's Social Security Number>~<father's name>~<father's Social Security Number>.

Example:

QRF|IRIS|||234567890~**20000607**~IA~IA9999~MA8888~SMITH^JANE^LEE~DOE~234567891~SMITH^JOHN^JO~234567892|

Patient Administration Message Segments

These segments contain information about patients and their associated medical data.

PID – Patient Identification Segment

The PID segment is used by all applications as the primary means of communicating patient identification information. This segment contains permanent patient identifying and demographic information.

SEQ	LEN	DT	R/SE	RP/#	TBL#	ELEMENT NAME
3		CX	R	Y	0203	Patient Identifier List (Internal ID)
5		XPN	R			Patient Name
6		XPN	SE			Mother's Maiden Name
7		TS	R			Date of Birth
8		IS	R		0001	Sex (Gender)
9		XPN				Patient Alias Name(s)
10		CE	SE	Y	0005	Race
11		XAD	R			Patient Address
13		XTN	SE			Phone number
22		CE	SE		0189	Ethnic Group
24		ID			0136	Multiple Birth Indicator
25		NM				Birth Order
29		TS				Patient Death Date

Field Notes:

- PID-3 See Table [0203](#). Sub-components 1 (ID) and 5 (identifier type code) are required for pre Implementation Guide 1.5. For messages being sent from Implementation Guide 1.5, sub-component 4 (Assigning Authority) is required. IRIS supports repetition of this field. A provider organization is required to send a Patient Internal ID using one of the following identifier type codes (PI, PN, PRN, or PT). Additional patient identifiers may be sent using repetition of the PID-3 field, including Social Security Number (SS) or Medicaid ID (MA). When IRIS sends to an outside system, the Primary State ID will be sent as the State Registry ID (SR), and the outside system's Primary Patient ID will be sent as the Patient Internal ID (PI) if it is stored in the IRIS.
- PID-5 See the [XPN data type](#). Last name and first name are required in the first two components. If the Name Type Code component is included, use L which means Legal.
- PID-6 See the [XPN data type](#). In this context, where the mother's maiden name is used for patient identification, IRIS uses only last name and first name. A mother's legal name might also appear in the context of an NK1 segment. IRIS does not send this data in outgoing data exchange. IRIS does not support repetition of this field. This element is strongly encouraged for assisting in the IRIS run-match process.
- PID-7 Give the year, month, and day of birth (YYYYMMDD). IRIS ignores any time component.
- PID-8 See Table [0001](#). Element: Sex (Gender). Use F (Female), M (Male), or U (Unknown).
- PID-9 See the XPN data type. IRIS will store Family Name, Given Name, and Middle Name for each Patient Alias name sent - other XPN components will be ignored. If the Patient Alias name is an exact match of the patient's primary name or an existing alias name, it will not be retained.
- PID-10 See Table [0005](#). IRIS stores and writes 'Unknown' values as null.
- PID-11 See the [XAD data type](#). IRIS does not support repetition of this field.
- PID-13 See the [XTN data type](#). IRIS does not support repetition of this field. If PRN is specified in component 2 (telecommunication use code (ID) from Table [0201](#)) IRIS will use the 6th, 7th, 8th, and 9th components for specification of area code, phone number, extension and text, respectively. Otherwise, IRIS will assume the phone number is specified in the first component in the [NNN] [(999)]999-9999[X99999][B99999][C any text] format.
- PID-22 See Table [0189](#). IRIS stores and writes 'Unknown' values as null. IRIS supports repetition of this field.

- PID-24 See Table [0136](#). Use Y to indicate the patient was born in a multiple birth.
- PID-25 Relevant when patient was born in a multiple birth. Use 1 for the first born, 2 for the second, etc. This field is useful in matching patient data to existing records. Note: A 'Y' value must be in PID-24 and indicate the birth order in PID-25 for the birth order to be loaded.
- PID-29 The date of death, if patient is deceased. Give the year, month, and day (YYYYMMDD). IRIS ignores any time component. If a death date is sent, then the Patient Registry Status in PD1-16 must indicate a value of 'P' for permanently inactive/deceased.

PD1 – Patient Additional Demographic Segment

The PD1 carries patient additional demographic information.

SEQ	LEN	DT	R/SE	RP/#	TBL#	ELEMENT NAME
11		CE	SE		0215	Publicity Code
16		IS	SE		0441	Immunization registry status
17		DT				Immunization registry status effective date
18		DT				Publicity Code effective date

Field Notes:

- PD1-11 See Table [0215](#). Controls whether recall/reminder notices are sent. IRIS will recognize '01' to indicate no recall/reminder notices or '02' recall/reminder notices are allowed to be sent for this patient.
- PD1-16 See Table [0441](#). Identifies the registry status of the patient. If a code of P is specified, the PID-29 segment must be filled in with Patient Death Date or record will be rejected.
- PD1-17 Effective date for registry status reported in PD1-16. Format is YYYYMMDD.
- PD1-18 Effective date for publicity code reported in PD1-11. Format is YYYYMMDD.

NK1 – Next of Kin/Associated Parties Segment

The NK1 segment contains information about the patient's other related parties. Any associated parties may be identified. Multiple NK1 segments can be sent for a patient account by incrementing the value in NK1-1.

SEQ	LEN	DT	R/SE	RP/#	TBL#	ELEMENT NAME
1	4	SI	R	Y		Set ID - NK1
2	48	XP	R			Name
3	60	CE	R		0063	Relationship
4	106	XAD				Address
5	40	XTN				Phone Number

Field Notes:

- NK1-1 Sequential numbers. Use '1' for the first NK1 within the message, '2' for the second, and so forth. Although this field is required by HL7, IRIS will ignore its value, and there is no requirement the record for the same responsible person keep the same sequence number across multiple messages, in the case information from the same record is transmitted more than once.
- NK1-2 See the [XPN data type](#). Name of the responsible person who cares for the patient. IRIS does not support repetition of this field.
- NK1-3 See [CE data type](#) and Table [0063](#). Relationship of the responsible person to the patient. Use the first three components of the CE data type, for example |MTH^Mother^HL70063|.
- NK1-4 See the [XAD data type](#). Responsible person's mailing address. IRIS does not support repetition of this field. If relationship (NK1-3) is MTH (Mother), the Address in this field will become the patient's address.
- NK1-5 Responsible person's phone number. IRIS does not support repetition of this field. If PRN is specified in component 2 (telecommunication use code from Table [0201](#)) IRIS will use the 6th 7th 8th and 9th components for specification of area code, phone number, extension and text, respectively. Otherwise, IRIS will assume the phone number is specified in the first component in the [NNN] [(999)]999-9999[X99999][B99999][C any text] format.

ORC – Order Request Segment (HL7 2.5.1 messages)

The ORC is used to transmit information specific to orders. It is a repeating segment and must be specified with every RXA segment.

SEQ	LEN	DT	R/SE	RP/#	TBL#	ELEMENT NAME
1	2	ID	R		0119	Order Control
2		EI	RE			Place Order Number
3		EI	R			Filler Order Number
10		XCN	RE			Entered By
12		XCN	C			Ordering Provider
17		CE	RE			Entering Location

Field Notes:

- ORC-1 Required. IRIS only supports the value of 'RE' in this field. See Table [0119](#).
- ORC-2 Indicates the placer order number used to uniquely identify this order among all order sent by a provider organization.
- ORC-3 Provider organization will use a unique identifier identifying this order

among all orders by the provider organization.

- ORC-10 This identifies the individual who entered this particular order. It may be used in conjunction with an RXA to indicate who recorded the immunization.
- ORC-12 This field contains the identity of the person who is the ordering authority. This field can be blank for historical immunizations.
- ORC-17 This field contains the provider organization Org Code who administered or entered the immunization. This should match the value found in field MSH-4.1 and RXA-11.4.

RXA – Pharmacy/Treatment Administration Segment

The RXA carries pharmacy/immunization administration data. It is a repeating segment and can record unlimited numbers of vaccinations. IRIS supports deduction of new immunizations from IRIS inventory as well as the deletion of immunizations from the immunization information system added incorrectly.

SEQ	LEN	DT	R/SE	RP/#	TBL#	ELEMENT NAME
1	4	NM	R			Give Sub-ID Counter
2	4	NM	R			Administration Sub-ID Counter
3		TS	R			Date/Time Start of Administration
5		CE	R			Administered Code
6		NM	R			Administered Amount
9		CE	R		NIP001	Administration Notes
10		XCN				Administering Provider
11		CM	R			Administered-at location
15		ST	S/E			Substance Lot Number
17		CE	S/E		0227	Substance Manufacturer Name
18		CE			NIP002	Substance Refusal Reason
20	2	ID	S/E		0322	Completion Status
21	2	ID	S/E		0323	Action code-RXA

Field Notes

- RXA-1 Required by HL7. Use '0' for IRIS.
- RXA-2 Required by HL7. Use '1' for IRIS. Note: For providers querying pre-implementation guide 1.5, IRIS sends back a value of '777' in field RXA-2 in a query response if the immunization is not valid.
- RXA-3 Date the vaccine was given. IRIS ignores any time component.
- RXA-5 See the [CE data type](#). Identifies the vaccine administered. IRIS accepts the following vaccine code sets: CVX (CVX Codes), CPT (CPT Codes), WTVN (Vaccine Trade Names), NDC (NDC Codes), and WVGC (Vaccine Group Codes). See IRIS Vaccine Codes [PDF](#) or [Spreadsheet](#).

For the CVX code set, provide information in the first triplet (components 1 –

3) of the RXA-5 segment. Provide the identifier (CVX Code) in the first component, text description in the second component (optional), and the name of the coding system 'CVX' in the third component.

CVX example:

|115^Td/Tdap^CVX^^^|

For all other codes sets, provide information in the second triplet (components 4 – 6) of the RXA-5 segment. Provide the identifier in the fourth component, text description in the fifth component (optional), and the name of coding system in the sixth component.

NDC Code example:

|^^^11793-2101-00^Td/Tdap^NDC|

Trade Name (WVTN) example:

|^^^Td^Td/Tdap^WVTN|

CPT Code example – Pre HL7 Implementation Guide 1.5:

|^^^90718^Td/Tdap^CPT|

CPT Code example – Post HL7 Implementation Guide 1.5:

|^^^90718^Td/Tdap^C4|

Vaccine Group (WVGC) example:

|^^^Td/Tdap^Td/Tdap^WVGC|

If sending multiple code sets, provide the CVX Code in the first triplet and the alternate code set in the second triplet.

CVX and CPT example:

|09^Td/Tdap^CVX^90718^Td/Tdap^CPT|

For outgoing data exchange, IRIS sends the CVX Code in the first triplet (components 1 – 3); if it is not available, the first triplet is left empty. In the second triplet (components 4 – 6), the IRIS sends NDC Code if it is stored for the immunization. If NDC Code is not present, the CPT Code is sent.

RXA-6 Dose Magnitude is the number of age appropriate doses administered. For example, a dose magnitude of 2 of a pediatric formulation would be adequate for an adult. IRIS and HL7 require this field to contain a value.

RXA-9 Use '00' to indicate the New Immunization Administered is owned by the sending organization or '01' to indicate Historical Record – Source Unspecified. If the source for a historical record is known, please use values 02 through 07 or 'OU' as described in Table [NIP001](#). For provider organizations set up to deduct from IRIS inventory via data exchange, '00' is mandatory in this field for the dose to deduct.

RXA-10 Identifies the name of the administering clinician (VEI), ordering authority (OEI), and recorder (REI) of the immunization in IRIS. The recorder is not supported on incoming data transfers and only returns if the immunization is owned by the provider requesting the data. IRIS will use components 2 – 7 to record the names. For incoming loads, it is recommended license information (LPN, RN, MD) be put in the 5th component so it processes as the clinician suffix in IRIS.

Example:

```
| ^GROBBERTS^DELIA^S^RN^MS^^^^^^^VEI^^~^SHAFFER^TERRENCE^P^MD^DR^^^^^^^OE  
I^^|
```

RXA-11 See [CM Data Type](#). Location vaccine was administered at. If the provider organization receives state supplied vaccine and/or participates in the Vaccines for Children program, RXA-11 is required in order for the Inventory Module to deduct from inventory appropriately. If using the inventory module (or plan to) this field needs to be sent. Administered-at location will be the provider organization code (Org code) for the clinic who owns the data. This will be the same code sent in MSH-4.1.

RXA-15 Lot number for the vaccine. For provider organizations set up to deduct from IRIS inventory via data exchange, lot number is a required field.

RXA-17 See Table [0227](#). Identifies the manufacturer of the vaccine. Use of the external code set MVX is recommended. When using this code system to identify vaccines, the coding system component of the CE field should be valued as 'MVX' rather than 'HL70227'. IRIS does not support repetition of this field.

Example:

```
|AB^Abbott Laboratories^MVX^^^|
```

RXA-18 See Table [NIP002](#). When applicable, this field records the reason the patient refused the vaccine. Any entry in this field indicates the patient did not take the substance. The vaccine offered should be recorded in RXA- 5. Do not record contraindications, immunities or reactions in this field. IRIS does not support repetition of this field.

RXA-20 See Table [0322](#). This field records the value PA for sub potent or partially administered doses. For example, a sub potent dose would be a dose of a vaccine which had been stored improperly, rendering the vaccine ineffective. A partially administered dose refers to the scenario where the patient jumps and the needle breaks or any action resulting in an unknown quantity of vaccine entering the patient's system.

RXA-21 See Table [0323](#). This field provides a method for correcting vaccination information previously transmitted incorrectly. To delete an immunization from IRIS, this field must be populated with 'D' and the other fields in the RXA should match the original message. Immunizations deducted from

OBX – Observation/Result Segment

The OBX segment is used to transmit an observation. In IRIS, it is primarily used in reference to a preceding RXA segment.

SEQ	LEN	DT	R/SE	RP/#	TBL#	ELEMENT NAME
1	4	SI	R			Set ID – OBX Value
2	3	ID	R			Value type
3		CE	R		NIP003	Observation Identifier
4	20	ST	R			Observation Sub-ID
5		--	R			Observation Value
11	1	ID	R		0085	Observation Result Status
14		TS	SE			Date/Time of the observation

Field Notes:

- OBX-1 Sequential numbers. Use '1' for the first OBX within the message, '2' for the second, and so forth.
- OBX-2 This field contains the data type which defines the format of the observation value in OBX-5. For Provider to IRIS data transfer, use 'CE' for Coded Entry. For IRIS to Provider data transfer, IRIS will send values of CE, TS, NM for Coded Entry, Timestamp, and Number respectively, depending on what is sent in OBX-5.
- OBX-3 See Table [NIP003](#). Identifies the general category of an observation. See OBX Examples listed after the OBX Field Notes for how the OBX segment is utilized in IRIS.
- OBX-4 For sending out Series Information and Recommendations, the number in this field groups together related OBX segments. For example, a single recommendation for DTP/aP is sent in a grouped set of five OBX segments, all with the same sub-identifier in OBX-4. The sub-identifier increments sequentially.

IRIS sends out five grouped OBX segments for each recommendation. The following is a single MMR recommendation, the second for this message, and so all share the same Observation sub-ID of 2 in OBX-4.

Example:

```
OBX|6|CE|30979-9^Vaccines Due
Next^LN^^^|2|03^MMR^CVX^90707^MMR^CPT|||||F|
OBX|7|TS|30979-9&30980-7^Date Vaccine Due^LN^^^|2|20130407|||||F|
OBX|8|NM|30979-9&30973-2^Vaccine due next dose
number^LN^^^|2|2|||||F|
OBX|9|TS|30979-9&30981-5^Earliest date to
give^LN^^^|2|20121105|||||F|
OBX|10|CE|30979-9&30982-3^Reason applied by forecast logic to project
this vaccine^LN^^^|2|^ACIP schedule|||||F|
```

OBX-5 The field identifies the specific value observed. IRIS has imposed a CE data type upon this field; the first component of which is required. The value corresponds to the LOINC code identified in OBX-3.

Example:

OBX|6|CE|30979-9^Vaccines Due Next^LN^^|2|85^HepA, NOS^CVX^90634^HepA, NOS^CPT|||||F|

OBX|7|TS|30979-9&30980-7^Date Vaccine Due^LN^^|2|20111212|||||F|

OBX|8|NM|30979-9&30973-2^Vaccine due next dose number^LN^^|2|1|||||F|

OBX|9|TS|30979-9&30981-5^Earliest date to give^LN^^|2|20111212|||||F|

OBX|10|CE|30979-9&30982-3^Reason applied by forecast logic to project this vaccine^LN^^|2|^ACIP schedule|||||F|

Reading this example tells the provider the next dose of HepA is due on December 12, 2011 and the dose is the first dose in the series. The earliest date this immunization can be administered and considered valid is December 12, 2011.

OBX-11 See Table [0085](#). Required for HL7. Use 'F' for IRIS.

OBX-14 Records the time of the observation. IRIS ignores any time component.

OBX Examples:

Example 1: Vaccination Contraindication/Precaution

When indicating a Vaccination Contraindication/Precaution, enter LOINC code 30945-0 (Table [NIP003](#)) in the OBX-3 field, and enter a Contraindication/Precaution code (Table [NIP004](#)) in the OBX-5 field.

Pre HL7 2.5.1 Implementation Guide 1.5 example:

OBX|1|CE|309450^Contraindication^LN|1|40^Thrombocytopenia^NIP^^|20090415|||||F|||20090415

Post HL7 2.5.1 Implementation Guide 1.5 example:

OBX|1|CE|30945-0^Vaccination contraindication^LN|1|27624003^Chronic disease (disorder)^SCT|||||F|||20090415

Example 2: History of Disease - Post HL7 2.5.1 Implementation Guide 1.5

When indicating a history of disease, enter LOINC code 59784-9 (Table [NIP003](#)) in the OBX-3 field, and enter a History of Disease (Table [NIP004](#)) in the OBX-5 field.

OBX|1|CE|59784-9^Disease with presumed immunity^LN |1|38907003^HISTORY OF VARICELLA INFECTION^SCT|||||F|||20121201|

Example 3: Immunities - Post HL7 2.5.1 Implementation Guide 1.5

When indicating a history of disease, enter LOINC code 75505-8 (Table [NIP003](#)) in the OBX-3 field, and enter an Immunity code (Table [NIP004](#)) in the OBX-5 field.

OBX|1|CE|75505-8^Diseases with serological evidence of immunity^LN|1|371113008^Varicella (finding)^SCT|||||F|||20100101|

Example 4: Reaction to Immunization

When indicating a Reaction to Immunization, enter LOINC code 31044-1 (Table [NIP003](#)) in the OBX-3 field, and enter a Reaction code (Table [IA001](#)) in the OBX-5 field.

Pre HL7 2.5.1 Implementation Guide 1.5 example:

OBX|1|CE|31044-1^Reaction^LN|12^Seizure occurring within 3 days^IRIS^^^|||||F

Post HL7 2.5.1 Implementation Guide 1.5 example:

OBX|1|CE|31044-1^Reaction^LN|1|VXC12^fever of > 40.5C (105F) within 48 hours of dose^CDCPHINVS|||||F|||20090415

Example 5: Vaccination Adverse Event Outcome - Pre HL7 2.5.1 Implementation Guide

When indicating a Vaccination Adverse Event Outcome, enter LOINC code 30949-2 (Table [NIP003](#)) in the OBX-3 field, and enter an Event Consequence code ([NIP005](#)) in the OBX-5 field.

OBX|1|CE|30949-2^Adverse Outcome^LN|L^Life threatening illness^NIP^^^|||||F

Example 6: Vaccine Eligibility Code

When indicating a Vaccine Eligibility Code, enter LOINC code 64994-7 (Table [NIP003](#)) in the OBX-3 field, and enter a Vaccine Eligibility Code ([IA002](#)) in the OBX-5 field.

OBX|1|CE|64994-7^Vaccine eligibility code^LN^^^||V03^No Insurance^IRIS|||||F

Note: Vaccine Eligibility Code is required for Vaccines for Children (VFC) participating clinics. IRIS collects vaccine eligibility code by dose in the OBX segment. IRIS requires this information at the dose level to support both billable projects and future accountability and interface requirements for vaccine ordering, distribution and inventory.

Example 7: Vaccine Funding Type

When indicating a Vaccine Funding Type, enter LOINC code 30963-3 (Table [NIP003](#)) in the OBX-3 field, and enter a Funding Type ([NIP008](#)) in the OBX-5 field. Vaccine Funding Type is required for inventory deduction.

Pre HL7 2.5.1 Implementation Guide 1.5 example:

OBX|1|CE|30963-3^Vaccine purchased with^LN^^^||PBF^PUBLIC Funds^NIP008|||||F

Post HL7 2.5.1 Implementation Guide 1.5 example:

OBX|1|CE|30963-3^Vaccine purchased with^LN^^^||VXC50^Public Funds^CDCPHINVS|||||F

Example 8: OBX to Send Vaccine Information Statements

When sending a Vaccine Information Statement (VIS), enter in LOINC code 30956-7 for vaccine type, LOINC code 29768-9 for VIS Publication Date, and LOINC code 29769-7 for date VIS was presented to the patient/guardian.

```
OBX|1|CE|30956-7^vaccine type^LN|1|03^MMR^CVX|||||F
OBX|2|TS|29768-9^VIS Publication Date^LN|1|20080110|||||F
OBX|3|TS|29769-7^VIS Presentation Date^LN|1|20091010|||||F
```

Example 9: OBX to Send Series Information for Vaccines

IRIS uses the OBX segment to send series information for vaccines. For each vaccine, the system sends out a grouped set of OBX segments.

The OBX-3 field is used to send LOINC Codes, which identify the component antigen, the series dose number, the vaccine eligibility and vaccine funding source is available. The LOINC itself is sent in OBX-3 in order to identify what the value in OBX-5 represents. The following table displays the LOINC Codes the system sends in OBX-3 for Series information.

LOINC Code	Description
30956-7	Component Vaccine Type
30973-2	Dose Number in Series
30963-3	Funding Source for the vaccine (if available)
64994-7	Vaccine Eligibility (if available)
59781-5	Dose Validity (post Implementation Guide 1.5)

In the following example, the LOINC Codes are displayed in OBX-3. These two OBX segments together express the dose number is the 1st dose of the DTaP series.

```
OBX|1|CE|30956-7^COMPONENT VACCINE TYPE^LN|1|20^DTaP^CVX^90700^DTaP^CPT|||||F|
OBX|2|NM|30973-2^Dose number in series^LN|1|1|||||F|
OBX|3|CE|30963-3^Vaccine funding source^LN||PBF^Public Funds^NIP008|||||Y
OBX|4|CE|64994-7^Vaccine Eligibility Code^LN||V01^^IRIS IIS|||||F
```

For each component of a combination vaccine, IRIS will send information on each vaccine in the combination including the vaccine type, and dose number in each series.

Pre Implementation Guide 1.5

```
ORC|RE||12265987
RXA|0|1|20170403|20170403|110^DTaP-HepB-IPV^CVX|1.0||00|||||
OBX|1|CE|30956-7^COMPONENT VACCINE TYPE^LN|1|110^DTaP-HepB-IPV^CVX^90723^DTaP-
HepB-IPV^CPT|||||F
OBX|2|NM|30973-2^Dose number in series^LN|1|1|||||F
OBX|3|CE|30956-7^COMPONENT VACCINE TYPE^LN|2|110^DTaP-HepB-IPV^CVX^90723^DTaP-
HepB-IPV^CPT|||||F
OBX|4|NM|30973-2^Dose number in series^LN|2|1|||||F
OBX|5|CE|30956-7^COMPONENT VACCINE TYPE^LN|3|110^DTaP-HepB-IPV^CVX^90723^DTaP-
HepB-IPV^CPT|||||F
OBX|6|NM|30973-2^Dose number in series^LN|3|1|||||F
OBX|7|CE|64994-7^Vaccine Eligibility Code^LN||V02^^IRIS IIS|||||F
```

Post Implementation Guide 1.5

```

ORC|RE||2134192^IAA
RXA|0|1|20150403|20150403|110^DTaP-HepB-IPV^C4^90723^DTaP-HepB-
IPV^C4|1.0|mL^milliliter^UCUM||00^new immunization record^NIP0001||^Iowa
Training Organization|||PED34||SKB^GlaxoSmithKline^MVX|||CP
RXR|C28161^Intramuscular^NCIT|RA^Right Arm^HL70163
OBX|1|CE|30956-7^COMPONENT VACCINE TYPE^LN|1|107^DTaP, NOS^CVX^90700^DTaP,
NOS^CPT|||||F
OBX|2|NM|30973-2^Dose number in series^LN|1|1|||||F
OBX|3|CE|30956-7^COMPONENT VACCINE TYPE^LN|2|45^HepB, NOS^CVX^90731^HepB,
NOS^CPT|||||F
OBX|4|NM|30973-2^Dose number in series^LN|2|2|||||F
OBX|5|CE|30956-7^COMPONENT VACCINE TYPE^LN|3|89^Polio,
NOS^CVX^Polio^WVGC|||||F
OBX|6|NM|30973-2^Dose number in series^LN|3|1|||||F
OBX|7|CE|64994-7^Vaccine Eligibility Code^LN|1|V02^Medicaid
Enrolled^HL70064|||||F
OBX|8|CE|59781-5^Dose Validity^LN|1|Y
  
```

Example 10: OBX to Send Recommendation Information for Vaccine Series

IRIS uses the OBX segment to send recommendation information for a vaccine series. For each recommendation, the system sends a grouped set of OBX segments, which follow a place-holder RXA segment which does not represent an actual immunization administered to the patient. The OBX segments express the recommended vaccine, the recommended date, the dose number in the series, the earliest date to give, and the schedule used to evaluate the immunization, which is always the ACIP schedule.

The OBX-3 field is used to send LOINC Codes, which identify the five components of the recommendation. The LOINC itself is sent in OBX-3 in order to identify what the value in OBX-5 represents. The following table displays the LOINC Codes the system sends in OBX-3 for Recommendations.

Pre Implementation Guide 1.5	
LOINC Code	Description
30979-9	Vaccines Due Next
30980-7	Date Vaccine Due
30973-2	Dose Number in Series
30981-5	Earliest date to give
30982-3	Reason applied by forecast logic to project this vaccine

In the following example, the LOINC Codes are displayed in OBX-3 for a recommendation an adolescent patient:

```

RXA|0|1|20020713|20020713|998^No Vaccine Administered^CVX|999
OBX|1|CE|30979-9^Vaccines Due Next^LN|1|88^Influenza-
seasn1^CVX^90724^Influenza-seasn1^CPT|||||F
OBX|2|TS|30980-7^Date Vaccine Due^LN|1|20190801|||||F
OBX|3|NM|30973-2^Vaccine due next dose number^LN|1|3|||||F
OBX|4|TS|30981-5^Earliest date to give^LN|1|20190801|||||F
OBX|5|CE|30982-3^Reason applied by forecast logic to project this
vaccine^LN|1|ACIP schedule|||||F
  
```

OBX|6|CE|30979-9^Vaccines Due Next^LN|2|164^Meningococcal B^CVX|||||F
OBX|7|TS|30980-7^Date Vaccine Due^LN|2|20180713|||||F
OBX|8|NM|30973-2^Vaccine due next dose number^LN|2|1|||||F
OBX|9|TS|30981-5^Earliest date to give^LN|2|20120713|||||F
OBX|10|CE|30982-3^Reason applied by forecast logic to project this vaccine^LN|2|ACIP schedule|||||F

Post Implementation Guide 1.5	
LOINC Code	Description
30956-7	Vaccine Type
30980-7	Date Vaccine Due
30973-2	Dose Number in Series
30981-5	Earliest date to give
59778-1	Date Vaccine is Overdue
59779-9	Immunization Schedule Used

RXA|0|1|20150203|20150203|998^No Vaccine Administered^C4|999|mL^milliliter^UCUM||^NIP0001|||||CP
OBX|1|CE|30956-7^Vaccine Type^LN|1|85^HepA^CVX^90730^HepA^C4|||||F
OBX|2|TS|30980-7^Date Vaccine Due^LN|1|20160203|||||F
OBX|3|NM|30973-2^Vaccine due next dose number^LN|1|1|||||F
OBX|4|TS|30981-5^Earliest date to give^LN|1|20160203|||||F
OBX|5|CE|59778-1^Date dose is overdue^LN|1|20170203
OBX|6|CE|59779-9^Schedule used^LN|1|VXC16^ACIP^CDCPHINVS|||||F
OBX|7|CE|30956-7^Vaccine Type^LN|2|45^HepB^CVX^90731^HepB^C4|||||F
OBX|8|TS|30980-7^Date Vaccine Due^LN|2|20150803|||||F
OBX|9|NM|30973-2^Vaccine due next dose number^LN|2|3|||||F
OBX|10|TS|30981-5^Earliest date to give^LN|2|20150721|||||F
OBX|11|CE|59778-1^Date dose is overdue^LN|2|20160903
OBX|12|CE|59779-9^Schedule used^LN|2|VXC16^ACIP^CDCPHINVS|||||F

The ability to receive recommendation information in these grouped OBX segments applies to bi-directional data exchange.

For batch processing, if the user configures the system so it will not send recommendations, the system will omit sending the grouped set of five OBX segments entirely. When sending a VXQ (Vaccination Query) message the system will return a VXR response with the recommendations, regardless of how data exchange is configured.

IRIS HL7 Implementation Guide

HL7 VXU Message Examples

To illustrate how an IRIS HL7 file is put together, the below example formats patient and immunization records to be transmitted to IRIS. The following table displays the information to be transmitted and it is organized into HL7 segments and fields. For example, PID-3 refers to the third field in the Patient Identification segment.

In an HL7 message, each segment is a single text line, ending with the carriage return character.

Patient #1 – HL7 2.4 formatted message		
Information Type	Value to Transmit	HL7 Field
PID Segment		
Chart Number	45LR999 (ID on Valley Clinic's system)	PID-3
Name	GEORGE M MILLER JR	PID-5
Mother's Maiden Name	MARTHA OLSON	PID-6
Birth date	February 27, 2005 (send as 20050227)	PID-7
Sex	M	PID-8
Address	123 MAIN, DES MOINES, IA 50340, 1843	PID-11
Multiple Birth Indicator	Y (born as part of a multiple birth)	PID-24
Birth Order	2 (second birth of a multiple birth)	PID-25
PD1 Segment		
Publicity Code	02 (reminder/recall – any method)	PD1-11
Patient Registry Status	A (patient is active in the immunization information system)	PD1-16
NK1 Segment		
Responsible Person #1	MARTHA MILLER	NK1-2
Relationship to patient	MTH	NK1-3
Address	123 MAIN, DES MOINES, IA 50340	NK1-4
Phone	555 123 4567	NK1-5
Responsible Person #2	GEORGE MILLER	NK1-2
Relationship to patient	FTH	NK1-3
RXA Segment #1		
Date Administered	November 9 th , 2018 (send as 20181109)	RXA-3
CVX Code	150 (Fluzone quad, P-free)	RXA-5
Dose size	0.5	RXA-6
Administered Notes	00 (new immunization)	RXA-9
Administering Provider Organization	Valley Clinic (send provider org code 12345)	RXA-11.4
Lot Number	UT6375NA	RXA-15
Expiration Date	July 1 st , 2019 (send as 20190701)	RXA-16
Lot Manufacturer	PMC (Sanofi Pasteur)	RXA-17
Action Code	A (add immunization)	RXA-21
RXR Segment #1		

IRIS HL7 Implementation Guide

Route	IM (intramuscular)	RXR-1
Site	RT (right thigh)	RXR-2
OBX Segment #1		
Funding Source	PVF (Private Funds)	OBX-1.5
Eligibility	V01 (Not VFC Eligible)	OBX-2.5

VXU message for Patient #1

```

MSH|^~\&||12345||IRIS|20120415091520||VXU^V04|00000123|P|2.4||AL
PID|||45LR999^^^^PI||MILLER^GEORGE^M^JR|OLSON^MARTHA|20050227|M|||123 MAIN ST^^DES
MOINES^IA^50340^US^^^POLK|||||000111222||||Y|2
PD1|||||||02^REMINDER/RECALL - ANY MENTOD^HL70215||||A|
NK1|1|MILLER^MARTHA|MTH^Mother^HL70063|123 MAIN ST^^DES
MOINES^IA^50340^US^^^1843|(555)123-4567
NK1|2|MILLER^GEORGE|FTH^Father^HL70063
RXA|0|999|20181109|20181109|150^INFLUENZA^CVX|0.5|mL^mL||00|^Smith^Nurse|^12345
|||UT6375NA|20190701|PMC^Sanofi Pasteur^MVX||||A
RXR|IM^IM^HL70162|RT^Thigh, Right^HL70163
OBX|1|CE|30963-3^Vaccines purchased with^LN||PVF^Private
Funding^NIP008||||F|||20181109
OBX|2|CE|64994-7^Eligibility Status^LN||V01^Not VFC
Eligible^IRIS||||F|||20181109

```

Patient George M Miller Jr. is identified by Valley Clinic's Patient ID, 45LR999, in his PID segment. George's mother's maiden name, his birth date, sex, and address also serve to identify him. Some other optional fields are not present, including fields from the full HL7 standard not defined in this document because they are not used by IRIS. Fields not present do not diminish the number of '|' delimiters, so later fields can be identified by ordinal position in the segment. Two NK1 segments give some information for George's mother and father with the minimum required for his father and the address and telephone fields for his mother.

ACK message for Patient #1

```

MSH|^~\&|IRIS|IRIS||12345|20120415091530||ACK|00000456|P|2.4
MSA|AA|00000456

```

Since there were no errors with the inbound VXU message sent to IRIS, an AA value was sent in MSA-1 of the ACK message indicating the application accepted the message without errors and the value sent in the inbound message to IRIS in MSH-10 is sent back in field MSA-2.

IRIS HL7 Implementation Guide

Patient #2 – HL7 2.5 formatted message pre Implementation Guide 1.5		
Information Type	Value to Transmit	HL7 Field
PID Segment		
IRIS ID	23LK729	PID-3
Name	MARIA PATIENT	PID-5
Mother's Maiden Name	ANGELICA SMITH	PID-6
Birth Date	April 13, 2018 (send as 20180413)	PID-7
Sex	F	PID-8
Address	555 FAKE ST, DES MOINES, IA 50311	PID-11
PD1 Segment		
Publicity Code	02 (reminder/recall – any method)	PD1-11
Patient Registry Status	A (patient is active in the immunization	PD1-16
ORC Segment #1		
Order Control ID	RE	ORC-1
Filler Order Number	BE77S3845.1	ORC-3
RXA Segment #1		
Date Administered	July 23, 2018 (send as 20180723)	RXA-3
CVX Code	110 (Pediarix)	RXA-5
Dose size	0.5	RXA-6
Administered Notes	00 (new immunization)	RXA-9
Administering Provider Organization	Valley Clinic (send provider org code: 12345)	RXA-11.4
Lot Number	ABC123	RXA-15
RXR Segment #1		
Route	IM (intramuscular)	RXR-1
Site	LD (left deltoid)	RXR-2
OBX Segment #1		
Funding Source	PBF (Public Funds)	OBX-1.5
Eligibility	V02 (Medicaid Eligible)	OBX-2.5
ORC Segment #2		
Order Control ID	RE	ORC-1
Filler Order Number	BE77S3845.1	ORC-3
RXA Segment #2		
Date Administered	July 23,2018 (send as 20180723)	RXA-3
CVX Code	48 (ActHib)	RXA-5
Dose size	0.5	RXA-6
Administered Notes	00 (new immunization)	RXA-9
Administering Provider Organization	Valley Clinic (send provider org code 12345)	RXA-11.4
Lot Number	EFG345	RXA-15
RXR Segment #2		
Route	IM (intramuscular)	RXR-1
Site	LT (left thigh)	RXR-2
OBX Segment #2		
Funding Source	PBF (Public Funds)	OBX-1.5
Eligibility	V02 (Medicaid Eligible)	OBX-2.5

IRIS HL7 Implementation Guide

VXU message for Patient #2

```

MSH|^~\&||12345||IRIS|20180415091520||VXU^V04^VXU_V04|00000124|P|2.5.1||AL
PID|||23LK729^^^PI||PATIENT^MARIA|SMITH^ANGELICA|20180413|F|||555 FAKE ST^^DES
MOINES^IA^50311^US^^^POLK|
PD1|||||||02^REMINDER/RECALL - ANY MENTOD^HL70215|||||A|
ORC|RE||BE77S3845.1|||||||
RXA|0|1|20180723|20180723|110^DTaP-HepB-IPV|0.5|||00||^12345|||||ABC123|
RXR|IM^IM^HL70162|LD^Deltoid, Left^HL70163
OBX|1|CE|30963-3^Vaccines purchased with^LN||PBF^Public
Funding^NIP008|||||F|||20181109
OBX|2|CE|64994-7^Eligibility Status^LN||V02^Medicaid
Eligible^IRIS|||||F|||20181109
ORC|RE||BE77S3845.1|||||||
RXA|0|1|20180723|20180723|48^Hib-PRP-T^CVX|0.5|||00||^12345|||||EFG345||||
RXR|IM^IM^HL70162|LT^Thigh, Left^HL70163
OBX|1|CE|30963-3^Vaccines purchased with^LN||PBF^Public
Funding^NIP008|||||F|||20181109
OBX|2|CE|64994-7^Eligibility Status^LN||V02^Medicaid
Eligible^IRIS|||||F|||20181109

```

ACK message for Patient #2

```

MSH|^~\&|IRIS IIS4.10.2|IRIS||11594|20180415091520||ACK|00000124|P|2.5.1
MSA|AR|00000124|System Vaccine Lot information not available. The incoming
immunization that this system retained may be identified by the following
characteristics -> Vaccination Date: 07232018 CVX Code:48 Lot Number:EFG345 Vac
Elig:M
ERR|||^HL70357

```

In this example, the lot number sent did not match a lot number in the provider organization's inventory so IRIS sent back an AR value in field MSA-2 indicating the application rejected the inventory deduction and listing the immunization information causing the error.

Patient #3 – HL7 2.5 formatted message post Implementation Guide 1.5		
Information Type	Value to Transmit	HL7 Field
PID Segment		
IRIS ID	92HG9257	PID-3
Name	JOSEPH PATIENT	PID-5
Mother's Maiden Name	MARY SMITH	PID-6
Birth date	May 28, 2015 (send as 20150528)	PID-7
Sex	M	PID-8
Address	123 EAST 14TH ST, DES MOINES, IA 50311	PID-11
PD1 Segment		
Publicity Code	02 (reminder/recall – any method)	PD1-11
Patient Registry Status	A (patient is active in the immunization	PD1-16
ORC Segment #1		
Order Control ID	RE	ORC-1
Filler Order Number	345234	ORC-3
RXA Segment #1		
Date Administered	February 13 th , 2019 (send as 20190213)	RXA-3
CVX Code	94 (MMRV)	RXA-5.1
NDC Code	00006-4171-00 (Proquad)	RXA-5.4

IRIS HL7 Implementation Guide

Dose	0.5	RXA-6
Administered Notes	00 (new immunization)	RXA-9
Administering Provider Organization	Valley Clinic (send provider org code 12345)	RXA-11.4
Lot Number	DRE123	RXA-15
Lot Expiration Date	December 12, 2019 (send as 20091212)	RXA-16
RXR Segment #1		
Route	C28161 (intramuscular)	RXR-1
Site	RA (right arm)	RXR-2
OBX Segment #1		
Eligibility	V02 (Medicaid Eligible)	OBX-1.5
Funding Source	VXC50 (Public Funds)	OBX-2.5
Vaccine Type	94 (MMRV)	OBX-3.5
VIS Publication Date	February 12 th , 2018 (send as 20180212)	OBX-4.5
VIS Presented Date	February 13 th , 2019 (send as 20190213)	OBX-5.5

Message for Patient #3

```

MSH|^~\&||12345||IRIS|20180415091520||VXU^V04^VXU_V04|00000125|P|2.5.1||AL|AL||
||Z22^CDCPHINVS
PID|1||92HG9257^^^Assigning Authority^MR||PATIENT
^JOSEPH|SMITH^MARY|20150528|M|||123 EAST 14TH ST^^DES MOINES^IA^50311^US^^^POLK|
PD1|||||||02^REMINDER/RECALL - ANY MENTOD^HL70215|||||A|
ORC|RE||345234|
RXA|0|1|20190213|20190213|94^MMRV^CVX^00006-4171-00^MMRV^NDC|0.5|||00||^12345|||
DRE123|20191212|||||A
RXR|C28161^Intramuscular^NCIT|RA^Right Arm^HL70163|
OBX|1|CE|64994-7^Eligibility Status^LN|1|V02^VFC eligible - Medicaid/Medicaid
Managed Care^HL70064|||||F
OBX|2|CE|30963-3^Vaccine purchased with^LN||VXC50^Public
Funds^CDCPHINVS|||||F|||20100101|
OBX|3|CE|30956-7^vaccine type^LN|1|94^MMRV^CVX|||||F|||20100115
OBX|4|TS|29768-9^VIS Publication Date^LN|1|20180212|||||F|||20100115
OBX|5|TS|29769-7^VIS Presentation Date^LN|1|20190213|||||F|||20100115

```

ACK message for Patient #3

```

MSH|^~\&||IRIS IIS4.12|IRIS|||20191010090528-
0500||ACK^V04^ACK|00000125|P|2.5.1||NE|NE||||Z23^CDCPHINVS|IRIS
MSA|AE|00000125
ERR||RXA^1^15|207^Application internal error^HL70357|W|5|||System Vaccine Lot
information not available. The incoming immunization that this system retained
may be identified by the following characteristics -> Vaccination Date: 02032019
CVX Code:94 Lot Number:Q3110HZ Vac Elig:M.

```

In this example, the lot number sent did not match a lot number in the provider organization's inventory so IRIS sent back an AE value in field MSA-2 indicating the message was processed but errors are being reported.

ERR-2 indicates the location of the error (RXA-15.1), ERR-3 indicates the error code (207 for application internal error), ERR-4 indicates the severity of the error (W for Warning), ERR-5 indicates the application error code (5 for table value not found) and ERR-8 gives a description of the error.

IRIS HL7 Implementation Guide

HL7 QBP/VXQ Message Examples

To illustrate how an IRIS HL7 QBP or VXQ file is put together, the below example is a query message to request immunization data from IRIS. The following table displays the information to be transmitted and it is organized into HL7 segments and fields. For example, PID-3 refers to the third field in the Patient Identification segment. In an HL7 message, each segment is a single text line, ending with the carriage return character.

HL7 2.4 VXQ formatted message 2.4

Information Type	Value to Transmit	HL7 Field
MSH Segment		
Message Type	VXQ^V01	MSH-9
QRD Segment		
Quantity limited request	1 (return max 1 patient)	QRD-7
Who subject filter	Patient Test	QRD-8
QRF Segment		
Where subject filter	IRIS	QRF-1
Other query subject filter	Patient birthdate: 20110513 Mother's name: Mother Test	QRF-5

VXQ message for Patient #1

```
MSH|^~\&|12345|IRIS|IRIS|20190213094847|SHAZEN|VXQ^V01|15517904|P|2.4|||ER|||||
QRD|20190213|R|I|15517904|||1^RD|7162109^Test^Patient^L^^MRN|VXI^VACCINE
INFORMATION^HL700048|IRIS|
QRF|IRIS|||77777777~20110513~~~~Test^Mother^N^~~~~
```

The provider organization is requesting immunization information for Patient Test and telling IRIS to only return 1 patient in its response. The provider included the required fields for patient name and date of birth as well as the optional field in mother's name to further help identify the patient.

VXR message for Patient #1

```
MSH|^~\&|IRIS|IRIS||12345|20190213||VXR^V03^VXR_V03|15517904|P|2.4
MSA|AA|15517904||0||0^Message Accepted^HL70357
QRD|20190213|R|I|15517904|||1^RD|7162109^Test^Patient^L^^MRN|VXI^VACCINE
INFORMATION^HL700048|IRIS||1
QRF|IRIS|||77777777~20110513~~~~Mother^N^~~~~
PID|1||3639405^^^^SR~3532362J^^^^MA||Test^Patient||20110513|M||2131-1|222 COURT
AVE^^COUNCIL BLUFFS^IA^51501^^PA^^19155||^PRN^H^^641^1122334|||||||2186-5||N|0
PD1|||||||02|Y|||A
ORC|RE||63963878
RXA|0|999|20160315|20160315|130^DTaP-IPV^CVX|1.0||00||^Health Clinic-Des
Moines|||33J53||SKB
RXR|IM|LVL
OBX|1|CE|30963-3^Vaccine funding source^LN||PBF^Public Funds^NIP008|||||Y
OBX|2|CE|30956-7^COMPONENT VACCINE TYPE^LN|1|130^DTaP-IPV^CVX^90696^DTaP-
IPV^CPT|||||F
OBX|3|NM|30973-2^Dose number in series^LN|1|5|||||F
OBX|4|CE|30956-7^COMPONENT VACCINE TYPE^LN|2|130^DTaP-IPV^CVX^90696^DTaP-
IPV^CPT|||||F
OBX|5|NM|30973-2^Dose number in series^LN|2|4|||||F
RXA|0|999|20110513|20110513|998^No Vaccine Administered^CVX|999
```

IRIS HL7 Implementation Guide

```

OBX|1|CE|30979-9^Vaccines Due Next^LN|0|88^Influenza-seasnl^CVX^90724^Influenza-
seasnl^CPT|||||F
OBX|2|TS|30979-9&30980-7^Date Vaccine Due^LN|0|20190801|||||F
OBX|3|NM|30979-9&30973-2^Vaccine due next dose number^LN|0|2|||||F
OBX|4|TS|30979-9&30981-5^Earliest date to give^LN|0|20190801|||||F
OBX|5|CE|30979-9&30982-3^Reason applied by forecast logic to project this
vaccine^LN|0|ACIP schedule|||||F
  
```

IRIS finds a single match and returns a VXR^V03 message to the provider. It reflects back the patient demographic information, including the unique registry ID of 3639405, along with the patient's immunization history. In this example, the patient received a DTAP-IPV vaccine from Health Clinic-Des Moines on March 15th, 2016. The OBX series segments indicated the funding source, the vaccine type, the dose number in the series and the scheduled used to evaluate the immunization.

The patient's immunization schedule is also sent. The OBX series information includes the vaccines type due, date the vaccine is due, the dose number due next in the series, the earliest date the patient can be immunized and have the dose be valid and the schedule used to evaluate the vaccine series.

VXQ formatted message pre Implementation Guide 1.5

Information Type	Value to Transmit	HL7 Field
MSH Segment		
Message Type	QBP^Q11	MSH-9
QPD Segment		
Message query name	Z44 (request immunization history and forecast)	QPD-1
Patient name	Patient Sample	QPD-4
Patient date of birth	August 6 th , 2018 (sent as 20180806)	QPD-6
RCP Segment		
Quantity limited request	2 (max return of 2 patients)	RCP-1

QBP message for Patient #2

```

MSH|^~\&|IRIS|IRIS|201902141354||QBP^Q11^QBP_Q11|685124|P|2.5.1|||AL|AL|||
||Z44^CDCPHINVS
QPD|Z44^Request Immunization
History^HL70471|20190214|4775901^^^^SR|Sample^Patient^T|^^^|20180806
RCP|I|2^RD^HL70126|R^real-time^HL70394
  
```

The provider organization is requesting immunization information for Patient Sample and telling IRIS to return a max of 2 patients in its response. The provider included the required fields for patient name and date of birth when searching for a patient but sending more fields such as mother's name, gender and address would help in identifying the patient.

RSP message for Patient #2

```

MSH|^~\&|IRIS|IRIS||10123|20190214||RSP^K11^RSP_K11|685124|P|2.5.1|||||||Z42^CD
CPHINVS|
MSA|AA|685124||0||0^Message Accepted^HL70357
  
```

IRIS HL7 Implementation Guide

```

QAK|685124|OK|Z34|
QPD|Z44^Request Immunization
History^HL70471|20190214|4775901^^^^SR|Sample^Patient^T|^^^|20110513|
PID|1||58901^^^^SR~3532362J^^^^MA||Sample^Patient||20110513|M||2131-1|555 FRONT
ST^COUNCIL BLUFFS^IA^51501^^PA^^19155||^PRN^H^^^641^1122335|||||||2186-5|
PD1|||||||02|Y||||A
ORC|RE||83144496
RXA|0|1|20161102|20161102|46^Hib-PRP-D^CVX|1.0|||00||^The Pediatric
Clinic|||M025194|MSD
RXR|IM|LVL
OBX|1|CE|30956-7^COMPONENT VACCINE TYPE^LN|1|46^Hib-PRP-D^CVX^90646^Hib-PRP-
D^CPT|||||F
OBX|2|NM|30973-2^Dose number in series^LN|1|1|||||F
OBX|3|CE|64994-7^Vaccine Eligibility Code^LN||Q^IRIS IIS|||||F
RXA|0|1|20160829|20160829|998^No Vaccine Administered^CVX|999
OBX|1|CE|30979-9^Vaccines Due Next^LN|0|107^DTP/aP^CVX^90700^DTP/aP^CPT|||||F
OBX|2|TS|30980-7^Date Vaccine Due^LN|0|20200829|||||F
OBX|3|NM|30973-2^Vaccine due next dose number^LN|0|5|||||F
OBX|4|TS|30981-5^Earliest date to give^LN|0|20200829|||||F
OBX|5|CE|30982-3^Reason applied by forecast logic to project this
vaccine^LN|0|ACIP schedule|||||F

```

IRIS finds a single match and returns a RSP message to the provider. It reflects back the patient demographic information, including the unique registry ID of 58901, along with the patient's immunization history. The patient received a HIB vaccine from a The Pediatric Clinic on November 2nd, 2016. The OBX series segments indicated the vaccine type, the dose number in the series and the patient's eligibility for the immunization.

The patient's immunization schedule is also sent. The OBX series information includes the vaccine type due, date the vaccine is due, the dose number due next in the series, the earliest date the patient can be immunized and have the dose be valid and the schedule used to evaluate the vaccine series.

VXQ formatted message post Implementation Guide 1.5

Information Type	Value to Transmit	HL7 Field
MSH Segment		
Message Type	QBP^Q11	MSH-9
QPD Segment		
Message query name	Z44 (request immunization history and forecast)	QPD-1
Patient name	Sam Smith	QPD-4
Patient date of birth	February 3 rd , 2015 (sent as 20150203)	QPD-6
RCP Segment		
Quantity limited	5 (max return of 5 patients)	RCP-1

QBP message for Patient #3

```

MSH|^~\&||12345|||20190805102500-
0600||QBP^Q11^QBP_Q11|QW345|P|2.5.1|||ER|AL|||||Z44^CDCPHINVS
QPD|Z44^Request Immunization History^CDCPHINVS|37374859|M239275^^^^Assigning
Authority^MR|Smith^Sam^^^^L|Murphy^Rebecca^^^^M|20150203|F|123 Elm
St^^Clive^IA^50325^USA^P|
RCP|I|5^RD&records&HL70126

```

IRIS HL7 Implementation Guide

The provider organization is requesting immunization information for Sam Smith and telling IRIS to return a max of 5 patients in its response. The provider included the required fields for patient name and date of birth when querying for a patient but also included mother's name and address to further help identify the patient.

RSP message for Patient #3

```
MSH|^~\&|IRIS IIS|IRIS||12345|20190805102500-0600||RSP^K11^RSP_K11|
QW345|P|2.5.1|||||Z42^CDCPHINVS|IRIS|IT01
MSA|AA|QW345|||^Message Accepted^HL70357
QAK|37374859|OK|Z44^Request Evaluated Immunization History and Forecast^CDCPHINVS
QPD|Z44^Request Immunization History^CDCPHINVS|37374859|M01K239275^^^Assigning
Authority^MR|Smith^Sam^^^^L|Murphy^Rebecca^^^^M|20150203|F|123 Elm
St^^Clive^IA^50325^USA^P
PID|1||122664^^^IAA^SR||SMITH^SAM|^M|20150203|M||123 Elm
St^^CLIVE^IA^50325^^PA^^19153|||||||N|0
PD1|||||||02^Reminder/recall - any method^HL70215|N||||A
ORC|RE||2134192^IAA
RXA|0|1|20150403|20150403|110^DTaP-HepB-IPV^C4^90723^DTaP-HepB-
IPV^C4|1.0|mL^milliliter^UCUM||00^new immunization record^NIP0001|^Iowa
Training Organization|||PED34||SKB^GlaxoSmithKline^MVX|||CP
RXR|C28161^Intramuscular^NCIT|RA^Right Arm^HL70163
OBX|1|CE|30956-7^COMPONENT VACCINE TYPE^LN|1|107^DTaP, NOS^CVX^90700^DTaP,
NOS^CPT|||||F
OBX|2|NM|30973-2^Dose number in series^LN|1|1|||||F
OBX|3|CE|30956-7^COMPONENT VACCINE TYPE^LN|2|45^HepB, NOS^CVX^90731^HepB,
NOS^CPT|||||F
OBX|4|NM|30973-2^Dose number in series^LN|2|2|||||F
OBX|5|CE|30956-7^COMPONENT VACCINE TYPE^LN|3|89^Polio, NOS^CVX^Polio^^WVGC|||||F
OBX|6|NM|30973-2^Dose number in series^LN|3|1|||||F
OBX|7|CE|64994-7^Vaccine Eligibility Code^LN|1|V02^Medicaid
Enrolled^HL70064|||||F
OBX|8|CE|59781-5^Dose Validity^LN|1|Y
ORC|RE||2134191^IAA
RXA|0|1|20150203|20150203|08^HepB-Peds^C4^90744^HepB-
Peds^C4|1.0|mL^milliliter^UCUM||00^new immunization record^NIP0001|^CP
RXR|C28161^Intramuscular^NCIT|LA^Left Arm^HL70163
OBX|1|CE|30956-7^COMPONENT VACCINE TYPE^LN|1|45^HepB, NOS^CVX^90731^HepB,
NOS^CPT|||||F
OBX|2|NM|30973-2^Dose number in series^LN|1|1|||||F
OBX|3|CE|64994-7^Vaccine Eligibility Code^LN|1|V03^No Insurance^HL70064|||||F
OBX|4|CE|59781-5^Dose Validity^LN|1|Y
ORC|RE||0^IAA
RXA|0|1|20150203|20150203|998^No Vaccine
Administered^C4|999|mL^milliliter^UCUM|^NIP0001|^CP
OBX|1|CE|30956-7^Vaccine Type^LN|1|85^HepA^CVX^90730^HepA^C4|||||F
OBX|2|TS|30980-7^Date Vaccine Due^LN|1|20160203|||||F
OBX|3|NM|30973-2^Vaccine due next dose number^LN|1|1|||||F
OBX|4|TS|30981-5^Earliest date to give^LN|1|20160203|||||F
OBX|5|CE|59778-1^Date dose is overdue^LN|1|20170203
OBX|6|CE|59779-9^Schedule used^LN|1|VXC16^ACIP^CDCPHINVS|||||F
```

IRIS finds a single match and returns a RSP^K11 message to the provider. It reflects back the patient demographic information, including the unique registry ID of 122664, along with the patient's immunization history. The patient received a Hep B vaccine on February 3rd, 2015. The OBX series segments indicated the vaccine type, the dose number in the series, the patient's eligibility for the immunization, and the validity of the dose. A combination vaccine of Pediarix was also given to the patient on April 3rd, 2015, and each individual component of the vaccine is sent back as the vaccine component type.

IRIS HL7 Implementation Guide

The patient's immunization schedule is also sent. The OBX series information includes the vaccine type due, date the vaccine is due, the dose number due next in the series, the earliest date the patient can be immunized, the past due date for the immunization and the scheduled used to evaluate the immunization.

No Patients Found:

If IRIS can not find any patients in the registry who match the sending organization's query, it will respond with a 'Z33' message in field MSH-21 and QAK-2 will have a value of 'NF' indicating no patients were found.

No Patients Found Example:

```
MSH|^~\&|IRIS IIS|IRIS||IT01|20191010111240-  
0500||RSP^K11^RSP_K11|35678|P|2.5.1|||||||Z33^CDCPHINVS|IRIS|IT01  
MSA|AA|35678||||^Message Accepted^HL70357  
QAK|1568|NF|Z34^Request Complete Immunization history^CDCPHINVS  
QPD|Z34^Request Evaluated History and  
Forecast^CDCPHINVS|1568|E36B10876^^^AIRA^MR|SMITH^SAM^^^^^L||20160101|F
```

Too Many Patients Found:

If the sending organization has a value of '1' in field RCP-1 and IRIS finds more than one patient who matches the information sent, IRIS will respond with a 'Z33' message in field MSH-21 indicating more than the maximum number of patients allowed were found. Also, QAK-2 will have a value of 'TM' indicating too many patients were found.

Too Many Patients Found Example:

```
MSH|^~\&|IRIS IIS|IRIS||IT01|20191010104327-0500||RSP^K11^RSP_K11|3U60-GM-2.5-  
Q4|P|2.5.1|||||||Z33^CDCPHINVS|IRIS|IT01  
MSA|AE|3U60-GM-2.5-Q4||||^Error^HL70357  
QAK|1567000954436.1379|TM|Z34^Request Complete Immunization history^CDCPHINVS  
QPD|Z34^Request Evaluated History and  
Forecast^CDCPHINVS|1567000954436.1379|E36B10876^^^AIRA^MR|Smith^Sam^^^^^L||201601  
01|F
```

Multiple Patients Found:

If the sending organization has a value of '10' in field RCP-1 and IRIS finds more than one patient who matches the information sent but less than 10, IRIS will respond with a 'Z31' message in field MSH-21 indicating too many potential matches were found. IRIS will list the patients found but not any immunization history or forecast.

Multiple Patients Found Example:

```
MSH|^~\&|IRIS IIS|IRIS||IT01|20191010105007-0500||RSP^K11^RSP_K11|3U60-GM-2.5-  
Q4|P|2.5.1|||||||Z31^CDCPHINVS|IRIS|IT01  
MSA|AA|3U60-GM-2.5-Q4||||^Message Accepted^HL70357  
QAK|1567|OK|Z34^Request Complete Immunization history^CDCPHINVS  
QPD|Z34^Request Evaluated History and  
Forecast^CDCPHINVS|1567|E36B10876^^^AIRA^MR|Smith^Sam^^^^^L||20160101|F  
PID|1||^IAA^SR||SMITH^SAM|^^^^^F|20160101|F||^DES  
MOINES^IA^50321^^PA^^19153|||||||N|0  
PD1|||||||02^Reminder/recall - any method^HL70215|N||||A  
PID|1||^IAA^SR||SMITH^SAMANTHA|^^^^^M|20160101|F||^DES  
MOINES^IA^50321^^PA^^19153|||||||N|0  
PD1|||||||02^Reminder/recall - any method^HL70215|N||||A
```

IRIS HL7 Implementation Guide

Data Exchange Specifications for IRIS

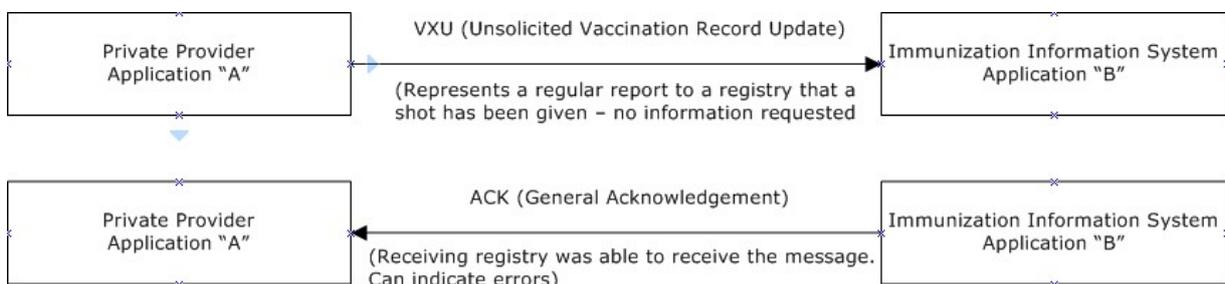
The central repository of IRIS contains records of patients from around the state. Patient and immunization records flow both ways between IRIS and outside systems. Data for a particular patient is transmitted by IRIS to an outside system (Provider Organization) only if the patient is identified as having an active relationship with the organization AND the relationship was created either by transmitting the patient's record to IRIS, or by creating the relationship via the IRIS web interface. So, an exchange of information about a given patient is always initiated by the outside system.

There are three options for exchanging data with IRIS:

- (1) The Provider Organization can send data to IRIS, which is a Provider Organization to IRIS data transfer.
- (2) The Provider Organization can request data from IRIS while not providing data to IRIS, which is an IRIS to Provider Organization data transfer.
- (3) The Provider Organization can send data to IRIS and IRIS will return a patient's demographic information, immunization history and forecast, which is a Bi-directional data transfer.

HL7 messages are always part of a two-way exchange between an initiating system and a responder. Sometimes the initial message implies specific data to be sent in a response. Other times, as is the case with IRIS patient and immunization data, the principal response of the responder is to process the message and post whatever it contains to its own database. For these cases, the responder provides the ACK message type in an HL7 format, which contains no new application data, but allows the receiver to inform the initiator the message has been received and processed successfully. If an error prevents successful processing, parts of the ACK message will allow this to be communicated as well.

For single-direction exchanges between IRIS and outside systems, it is the responsibility of the outside system to initiate the transfer of the first file. This file contains a VXU (patient and immunization data) message with patient and immunization data for adding or updating the IRIS registry. After processing those messages, IRIS responds with a response file of ACK messages.

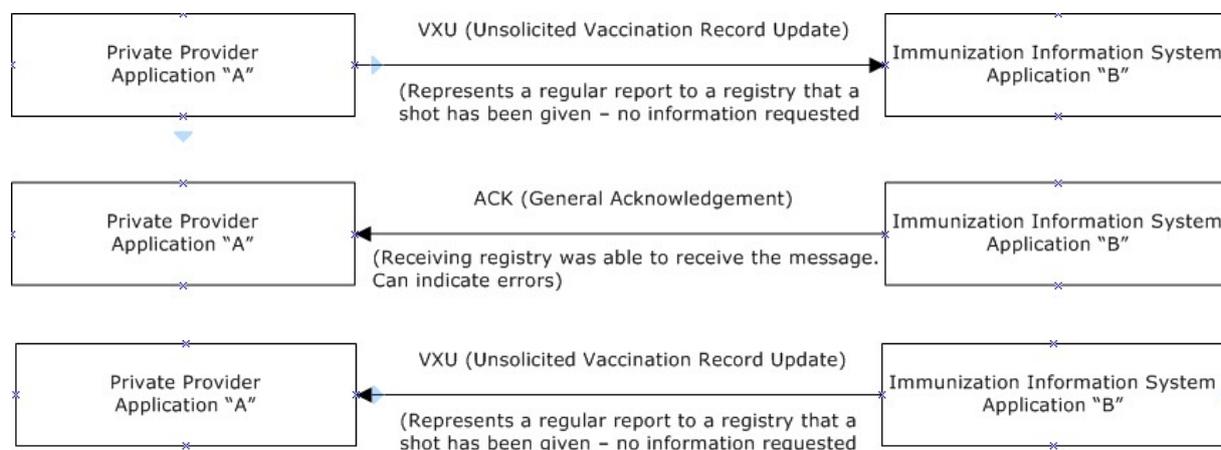


IRIS HL7 Implementation Guide

This transmission of data to IRIS will follow the pattern below:

	Provider Organization	IRIS
1.	Creates a file of patient and immunization records that are new or have changed since they were last transmitted to IRIS.	
2.	Transmits the file to IRIS.	
3.		Processes the file received and creates a file of ACK messages.
4.		Posts the ACK file for the initiator to pick up via the web-interface.
5.	Processes the ACK file to confirm success of the file transmission.	

For Bi-directional exchanges between IRIS and outside systems, it is again the responsibility of the outside system to initiate the transfer of the first file, containing either a VXU message. After processing those messages, IRIS responds with a response file of ACK messages. At the same time or soon after, IRIS also creates another file of VXU messages, containing the full patient record (if the patient was new), to send to the Provider Organization which initiated the first transfer. It is the responsibility of the Provider Organization as receiver to transmit back a file of ACK messages.



This exchange of data to IRIS is detailed below.

	Provider Organization	IRIS
1.	Creates a file of patient and immunization records that are new or have changed since they were last transmitted to IRIS.	
2.	Transmits the file to IRIS.	
3.		Processes the file received, creates a file of ACK messages.

IRIS HL7 Implementation Guide

4.		Creates a file of any active patient and immunization records which have changed since they were last transmitted to this Provider
5.		Posts the file of patient and immunization records changed since they were last transmitted to this Provider Organization to pick up via the web-interface.
6.	Processes the ACK file to confirm success of the file transmission.	
7.	Processes the file of patient and immunization records changed since they were last transmitted to this Provider Organization.	
8.	Processes the file received, creates a file of ACK messages.	
9.	Transmits the ACK file to IRIS.	
10.		Processes the ACK file to confirm success of the file transmission.

For Step 2 in the above table, it is permissible for a Provider Organization to send a file containing only file batch headers and footers as a way of triggering the file IRIS creates in Step 5.

It is also possible the file IRIS creates in Step 5 will contain only file batch headers and footers if there are no records to send.

IRIS HL7 Implementation Guide

Data Exchange Frequency: Real-time & Batch

Regardless of whether information is sent in real-time or batch, the format and content of the HL7 messages and what is returned from IRIS will be the same. (See section 1 of this guide for information on HL7 messages.)

Real Time Transfer

IRIS can accept and transmit the HL7 real time messaging for submitting patient and immunization information to IRIS.

Real time processing with IRIS refers to the ability to transmit an immunization/query and receive from IRIS the resulting HL7 response message. If sending through SOAP Web Services, messages are processed one at a time.

Batch Transfer

The definitions above tell how to create messages containing patient and immunization data. Each message can logically stand on its own and HL7 is compatible with various methods of real-time and batch transmission. Sending files by batch permits many messages to be sent together. Batch header and footer segments are not part of any message, but serve to bracket the messages defined above. (Note: Batch Message Headers (i.e. FHS, BHS) and footers (i.e. FTS, BTS) are not allowed for real time processing.) The structure of a batch file is as follows.

```
[FHS]           (file header segment)
  {[BHS]        (batch header segment)
    {[MSH       (zero or more HL7 messages)
      ...]}     (message content)
    [BTS]}     (batch trailer segment)
[FTS]           (file trailer segment)
```

FHS – File Header Segment

The FHS segment is used to head a file (group of batches).

SEQ	LEN	DT	R/SE	RP/#	TBL#	ELEMENT NAME
1	1	ST	R	Y		File Field Separator
2	4	ST	R			File Encoding Characters
3	15	ST				File Sending Application
4	20	ST	SE			File Sending Facility
6	20	ST				File Receiving Facility
7	26	TS				File Creation Date/Time
9	20	ST				File Name/ID
10	80	ST				File Header Comment
11	20	ST				File Control ID
12	20	ST				Reference File Control ID

IRIS HL7 Implementation Guide

Field Notes:

- FHS-1 Same definition as the corresponding field in the [MSH segment](#).
- FHS-2 Same definition as the corresponding field in the [MSH segment](#).
- FHS-3 Same definition as the corresponding field in the [MSH segment](#).
- FHS-4 Same definition as the corresponding field in the [MSH segment](#).
- FHS-6 Same definition as the corresponding field in the [MSH segment](#).
- FHS-7 Same definition as the corresponding field in the [MSH segment](#).
- FHS-9 Same definition as the corresponding field in the [MSH segment](#).
- FHS-10 Free text, which may be included for convenience, but has no effect on processing.
- FHS-11 This field is used to identify a particular file uniquely among all files sent from the sending facility identified in FHS-4.
- FHS-12 Contains the value of FHS-11-file control ID when this file was originally transmitted. Not present if this file is being transmitted for the first time.

FTS - File Trailer Segment

The FTS segment defines the end of a file.

SEQ	LEN	DT	R/SE	RP/#	TBL#	ELEMENT NAME
1	10	NM				File Batch Count
2	80	ST				File Trailer Comment

Field Notes:

- FTS-1 The number of batches contained in this file. IRIS normally sends one batch per file and discourages sending multiple batches per file.
- FTS-2 Free text, which may be included for convenience, but has no effect on processing.

BHS – Batch Header Segment

The BHS segment defines the start of a batch.

SEQ	LEN	DT	R/SE	RP/#	TBL#	ELEMENT NAME
1	1	ST	R	Y		Batch Field Separator
2	4	ST	R			Batch Encoding Characters
3	15	ST				Batch Sending Application
4	20	ST	SE			Batch Sending Facility

IRIS HL7 Implementation Guide

6	20	ST				Batch Receiving Facility
7	26	TS				Batch Creation Date/Time
10	80	ST				Batch Comment
11	20	ST				Batch Control ID
12	20	ST				Reference Batch Control ID

Field Notes:

- BHS-1 This field contains the separator between the segment ID and the first real field, BHS-2 (batch encoding characters). As such, it serves as the separator and defines the character to be used as a separator for the rest of the segment. IRIS requires '|' (ASCII 124).
- BHS-2 Same definition as the corresponding field in the [MSH segment](#).
- BHS-3 Same definition as the corresponding field in the [MSH segment](#).
- BHS-4 Same definition as the corresponding field in the [MSH segment](#).
- BHS-6 Same definition as the corresponding field in the [MSH segment](#).
- BHS-7 Same definition as the corresponding field in the [MSH segment](#).
- BHS-10 Free text, which may be included for convenience, but has no effect on processing.
- BHS-11 This field is used to uniquely identify a particular batch. It can be echoed back in BHS-12 (reference batch control ID) if an answering batch is needed. For IRIS purposes, the answering batch will contain ACK messages.
- BHS-12 This field contains the value of BHS-11-batch control ID when this batch was originally transmitted. Not present if this batch is being sent for the first time. See definition for BHS-11-batch control ID.

BTS – Batch Trailer Segment

The BTS segment defines the end of a batch.

SEQ	LEN	DT	R/SE	RP/#	TBL#	ELEMENT NAME
1	10	NM				Batch Message Count
2	80	ST				Batch Comment

Field Notes:

- BTS-1 This field contains the count of the individual messages contained within the batch.
- BTS-2 Free text, which can be included for convenience, but has no effect on processing.

IRIS HL7 Implementation Guide

HL7 Message Transport Methods

The preferred method for sending immunization update and query messages is HL7 real-time via the SOAP web service. Other options are HL7 batch files which can be uploaded to IRIS.

Please contact the IRIS Help Desk at 1-800-374-3958 if interested in setting up electronic data exchange with IRIS.

IRIS HL7 Implementation Guide

Appendix A - HL7 Data Types

The following descriptions of HL7 data types are excerpted or adapted from the HL7 standard. See the field notes within each segment definition above on how to use data types in particular fields. Some data types have complex definitions much of which do not apply to IRIS usage, and these omit much of the HL7 definition of the data type, referring instead to the field notes in the segment definitions.

CE - Coded Element

This data type transmits codes and the text associated with the code. To allow all six components of a CE data type to be valued, the maximum length of this data type must be at least 60. The components included in the CE data type are always as follows:

<identifier (ST)> ^ <text (ST)> ^ <name of coding system (ST)> ^ <alternate identifier(ST)> ^ <alternate text (ST)> ^ <name of alternate coding system (ST)>

These components are defined as follows:

Identifier (ST): Sequence of characters (the code) uniquely identifying the item being referenced by the <text>. Different coding schemes will have different elements here.

Text (ST): Name or description of the item in question. E.g., myocardial infarction or X-ray impression. Its data type is string (ST).

Name of coding system (ST): Each coding system is assigned a unique identifier. This component will serve to identify the coding scheme being used in the identifier component. The combination of the identifier and name of coding system components will be a unique code for a data item. Each system has a unique identifier. The various systems currently used by IRIS are located in the tables section of this document. Others may be added as needed. When an HL7 table is used for a CE data type, the name of coding system component is defined as HL7NNNN where NNNN is the HL7 table number.

Alternate components: These three components are defined analogously to the above for the alternate or local coding system. If the Alternate Text component is absent, and the Alternate Identifier is present, the Alternate Text will be taken to be the same as the Text component. If the Alternate Coding System component is absent, it will be taken to mean the locally defined system.

Example:

```
|F-11380^CREATININE^I9^2148-5^CREATININE^LN
```

Note: The presence of two sets of equivalent codes in this data type is semantically different from a repetition of a CE-type field. With repetition, several distinct codes (with distinct meanings) may be transmitted.

IRIS HL7 Implementation Guide

Note: For HL7-defined tables which have not been adopted from some existing standard, the third component, "name of coding system," is constructed by appending the table number to the string "HL7." Thus, the field RXR-2-site, is a CE data type which refers to HL7 table number 0163. Its "name of coding system" component is "HL70163".

CM - Composite

This data type is a combination of other meaningful fields. The complete format is as follows:

```
<point of care (IS)> ^ <room (IS) ^ <bed (IS)> ^ <facility (HD) ^ <location status (IS) ^ <patient location type (IS)> ^ <building (IS)> ^ <floor (IS)> ^ < street address (ST)> ^ <other designation (ST)> ^ <city (ST)> ^ <state or province (ST)> ^ <zip or postal code(ST)> ^ <country (ID)> ^ <address type (ID)> ^ <other geographic designation (ST)>Subcomponents of facility (HD): <namespace ID (IS)> & <universal ID (ST)> & <universal ID type (ID)>
```

Example:

```
|^^^Valley Clinic|
```

Note IRIS disregards most of these components except those indicating facility and address.

CX - Extended Composite ID with Check Digit

IRIS uses this data type only for patient identification in Patient Identification (PID) segments. See the field notes for values used for IRIS.

HD - Hierarchic Designator

IRIS uses this data type only to identify sender and receiver in Message Header (MSH) segments. See the field notes for values used for IRIS.

ID - Coded Value for HL7 Defined Tables

The value of such a field follows the formatting rules for a ST field, except it is drawn from a table of legal values. There is always a specific HL7 table number associated with the ID data type. Examples of ID fields include religion and sex.

IS - Coded Value for User Defined Tables

The value of such a field follows the formatting rules for a ST field except it is drawn from a site-defined (or user-defined) table of legal values. There is always a specific table number associated with the IS data type. An example of an IS field is the Event reason code defined in Section 3.3.1.4 [of the full HL7 standard], "Event reason code."

NM - Numeric

A number represented as a series of ASCII numeric characters consisting of an optional leading sign (+ or -), the digits and an optional decimal point. In the absence of a sign, the number is assumed to be positive. If there is no decimal point the number is assumed to be an integer.

IRIS HL7 Implementation Guide

Examples:

```
|999|  
|-123.792|
```

Leading zeros, or trailing zeros after a decimal point, are not significant. For example, the following two values with different representations, "01.20" and "1.2", are identical. Except for the optional leading sign (+ or -) and the optional decimal point (.), no non-numeric ASCII characters are allowed. Thus, the value <12 should be encoded as a structured numeric (SN) (preferred) or as a string (ST) (allowed, but not preferred) data type.

SI - Sequence ID

A non-negative integer in the form of a NM data type. See the field notes in segments using this data type for specifications of SI fields.

ST - String Data

This data format is used for unfiltered text. String data is left justified with trailing blanks optional. Any displayable (printable) ACSII characters can be used (hexadecimal values between 20 and 7E, inclusive, or ASCII decimal values between 32 and 126), except the defined delimiter characters.

Example:

```
|almost any data at all 123 @?${|
```

To include any HL7 delimiter character (except the segment terminator) within a string data field, use the appropriate HL7 escape sequence.

Usage note: the ST data type is intended for short strings (e.g., less than 200 characters). For longer strings the TX or FT data types should be used.

TS - Time Stamp

This data format contains the exact time of an event, including the date and time. The date portion of a time stamp follows the rules of a date field and the time portion follows the rules of a time field. The specific data representations used in the HL7 encoding rules are compatible with ISO 8824-1987(E).

Format: YYYY[MM[DD[HHMM[SS[.S[S[S[S]]]]]]][+/-ZZZZ]^<degree of precision>

In prior versions of HL7, an optional second component indicates the degree of precision of the time stamp (Y = year, L = month, D = day, H = hour, M = minute, S = second). This optional second component is retained only for purposes of backward compatibility.

By site-specific agreement, YYYYMMDD[HHMM[SS[.S[S[S[S]]]]][+/-ZZZZ]^<degree of precision> may be used where backward compatibility must be maintained.

In the current and future versions of HL7, the precision is indicated by limiting the number of digits used, unless the optional second component is present. Thus, YYYY is used to

IRIS HL7 Implementation Guide

specify a precision of `year,' YYYYMM specifies a precision of `month,' YYYYMMDD specifies a precision of `day,' and so forth. In each of these cases, the time zone is an optional component. Maximum length of the time stamp is 26.

Examples:

```
|19760704010159-0600|
```

Indicates 1:01:59 on July 4, 1976 in the Eastern Standard Time zone.

```
|19760704010159-0500|
```

Indicates 1:01:59 on July 4, 1976 in the Eastern Daylight Saving Time zone.

```
|198807050000|
```

Indicates midnight of the night extending from July 4 to July 5, 1988 in the local time zone of the sender.

```
|19880705|
```

Same as prior example, but precision extends only to the day. Could be used for a birth date, if the time of birth is unknown.

The HL7 Standard strongly recommends all systems routinely send the time zone offset but does not require it. All HL7 systems are required to accept the time zone offset, but its implementation is application specific. For many applications the time of interest is the local time of the sender. For example, an application in the Eastern Standard Time zone receiving notification of an admission takes place at 11:00 PM in San Francisco on December 11 would prefer to treat the admission as having occurred on December 11 rather than advancing the date to December 12.

XAD - Address

This data type indicates a postal address. It uses the following format:

```
<street address (ST)> ^ <other designation (ST)> ^ <city (ST)> ^ <state or province (ST)> ^ <zip or postal code(ST)> ^ <country (ID)> ^ < address type (ID)> ^ <other geographic designation (ST)> ^ <county/parish code (IS)> ^ <census tract (IS)> ^ <address representation code (ID)>
```

Example:

```
|1234 Easy St.^Ste. 123^San Francisco^CA^95123^USA^B^^SF^^|
```

Street address (ST): The street or mailing address of a person or institution.

Other designation (ST): Second line of address. In general, it qualifies address. Examples: Suite 555 or Fourth Floor.

IRIS HL7 Implementation Guide

City (ST):

State or province (ST): State or province should be represented by the official postal service codes for that country.

Zip or postal code (ST): Zip or postal codes should be represented by the official codes for that country. In the US, the zip code takes the form 99999[-9999], while the Canadian postal code takes the form A9A-9A9.

Country (ID): Defines the country of the address. See Table [0212](#)

Address type (ID): Address type is optional.

Other geographic designation (ST): Other geographic designation includes country, bioregion, SMSA, etc.

County code (IS): A code representing the county in which the specified address resides. Refer to user-defined table [0289](#) - County. When this component is used to represent the county, component 8 'other geographic designation' should not duplicate it (i.e., the use of 'other geographic designation' to represent the county is allowed only for the purpose of backward compatibility, and should be discouraged in this and future versions of HL7).

Census tract (IS): An optional code representing the census track in which the specified address resides. IRIS does not store this value.

XCN - Extended Composite ID Number and Name for Persons

IRIS uses this data type only to identify Provider Organizations administering immunizations. See the field notes for segment RXA.

XPN - Extended Person Name

This data type indicates the long form of a person's given name and titles. It follows this format:

<family name (ST)> & <last name prefix (ST)> ^ <given name (ST)> ^ <middle initial or name (ST)> ^ <suffix (e.g., JR or III) (ST)> ^ <prefix (e.g., DR) (ST)> ^ <degree (e.g., MD) (ST)> ^ <name type code (ID) > ^ <name representation code (ID)>

Example:

```
|Smith&St^John^J^III^DR^PHD^L|
```

Family name (ST):

Last Name Prefix (ST): Used to specify a name prefix (e.g., "De La").

IRIS HL7 Implementation Guide

Given name (ST):

Middle initial or name (ST): IRIS encourages the use of middle initials, even if the full name is not known.

Suffix (ST): Used to specify a name suffix (e.g., Jr. or III).

Prefix (ST): Used to specify a name prefix (e.g., Dr.).

Degree (ST): Used to specify an educational degree (e.g., MD).

Name type code (ID): A code representing the type of name. Refer to the following table from the HL7 Standard.

HL7 Table 0200 – Name Type	
Value	Description
A	Alias Name
L	Legal Name
D	Display Name
M	Maiden Name
C	Adopted Name

Note: The legal name is the same as the current married name.

Name representation code (ID): This component can be used when names are represented in ideographic or non-alphabetic systems. IRIS ignores this component.

XTN - Extended Telecommunication Number

This data type is used to express telecommunications information. It uses the following format:

```
[NNN][((999))999-9999[X99999][B99999][C any text]^<telecommunication use code (ID)>^<telecommunication equipment type (ID)>^<email address (ST)>^<country code (NM)>^<area/city code (NM)>^<phone number (NM)>^<extension (NM)>^<any text (ST)> [(999)] 999-9999 [X99999][C any text]
```

Example:

```
| (555) 123-4567^PRN^PH |
```

Telecommunication use code (ID): A code representing a specific use of a telecommunication number. In IRIS this value is always 'PRN' (indicating Primary Residence Number) from the HL7 table [0201](#) – Telecommunication Use Code. Other values received will be treated as PRN.

IRIS HL7 Implementation Guide

Telecommunication equipment type (ID): A code representing the type of telecommunication equipment. In IRIS this value is always 'PH' (indicating Telephone) from the HL7 table [0202](#) – Telecommunication Equipment Type. Other values received will be treated as PH.

Email address (ST): IRIS reads this value when entered under PID-13 only. It will not read NK1 email addresses.

Country code (NM):

Area/city code (NM): IRIS will populate this field in output messages using the data in the first XTN component.

Phone number (NM): IRIS will populate this field in output messages using the data in the first XTN component.

Extension (NM): IRIS will populate this field in output messages using the data in the first XTN component.

Any Text (ST): IRIS disregards this component

Appendix B - HL7 Tables

The following tables give valid values for fields in the segments defined above, in the cases where the field definitions reference an HL7 table number. The tables are considered to be part of the HL7 standard, but those tables designated as type User have values determined by IRIS.

Type	Table	Name	Value	Description
HL7	0001	Sex	(use in PID-8)	
	0001		F	Female
	0001		M	Male
	0001		U	Unknown
HL7	0003	Event Type	(use in MSH-9.2)	
	0003		V01	VXQ - Query for vaccination record
	0003		V02	VXX - Response to vaccination query returning multiple PID matches
	0003		V03	VXR - Response to vaccination query returning a single match
	0003		V04	VXU - Unsolicited vaccination record update
	0003		Q11	QBP - Query by parameter
	0003		K11	Response to query messages
HL7	0005	Race	(use in PID-10)	
	0005		1002-5	American Indian or Alaska Native
	0005		2028-9	Asian
	0005		2076-8	Native Hawaiian or Other Pacific Islander
	0005		2054-5	Black or African-American
	0005		2106-3	White
	0005		2131-1	Other Race
HL7	0008	Acknowledgment	(use in MSA-1)	
	0008		AA	Application Accept
	0008		AE	Application Error
	0008		AR	Application Reject
HL7	0048	What Subject Filter	(use in QRD-9)	
	0048		VXI	Vaccine Information
User	0063	Relationship	(use in NK1-3)	
	0063		ASC	Associate
	0063		BRO	Brother
	0063		CGV	Care giver
	0063		CHD	Child
	0063		DEP	Handicapped dependent
	0063		DOM	Life partner
	0063		EMC	Emergency contact
	0063		EME	Employee
	0063		EMR	Employer
	0063		EXF	Extended family
	0063		FCH	Foster Child
	0063		FND	Friend
	0063		FTH	Father
	0063		GCH	Grandchild
	0063		GRD	Guardian
	0063		GRP	Grandparent
	0063		MGR	Manager
	0063		MTH	Mother
	0063		NCH	Natural child

Type	Table	Name	Value	Description
	0063		NON	None
	0063		OAD	Other adult
	0063		OTH	Other
	0063		OWN	Owner
	0063		PAR	Parent
	0063		SCH	Stepchild
	0063		SEL	Self
	0063		SIB	Sibling
	0063		SIS	Sister
	0063		SPO	Spouse
	0063		TRA	Trainer
	0063		UNK	Unknown
	0063		WRD	Ward of court
HL7	0064	Financial Class	(use in OBX-5)	
	0064		V01	Not VFC eligible
	0064		V02	Medicaid Enrolled
	0064		V03	No Insurance
	0064		V04	American Indian/Alaskan Native
	0064		V05	Underinsured
HL7	0076	Message Type	(use in MSH-9.1)	
	0076		ACK	General acknowledgment message
	0076		QBP	Query by Parameter message
	0076		QCK	Query general acknowledgment
	0076		RSP	Response to query by parameter
	0076		VXQ	Query for vaccination record
	0076		VXX	Vaccination query response with multiple PID matches
	0076		VXR	Vaccination query record response
	0076		VXU	Unsolicited vaccination record update
	0076		ORU	Unsolicited observation results
HL7	0085	Observation result	(use in OBX-11)	
	0085		F	Final results
	0085		O	Order detail description only
HL7	0091	Query Priority	(use in QRD-3)	
	0091		I	Immediate
HL7	0103	Processing ID	(use in MSA-11)	
	0103		P	Production
HL7	0104	Version ID	(use in MSH-12)	
	0104		2.3.1	CDC IG Version 2.1, HL7 2.3.1, 2002 and CDC IG Version 2.2, HL7 2.3.1, 2006
	0104		2.4	CDC IG Version 2.1, HL7 2.3.1, 2002 and CDC IG Version 2.2, HL7 2.3.1, 2006
	0104		2.5.1	Release 2.5.1 April 2007
HL7	0106	Query/Response	(use in QRD-2)	
	0106		R	Response is in record-oriented format
HL7	0119	Order Control	(Use in ORC-1)	
	0119		RE	Observations to follow
HL7	0126	Quantity limited	(use in QRD-7; RCP-2)	

	0126		RD	Records
HL7	0136	Yes/No Indicator	(use in PID-24)	
	0136		Y	Yes
	0136		N	No
HL7	0155	Accept/ Application Acknowledg ment Conditions	(use in MSH- 15)	
	0155		AL	Always
	0155		NE	Never
	0155		ER	Error/Reject conditions only
HL7	0162	Route of Adminis	(use in RXR-1)	Pre HL7 2.5.1 Implementation Guide 1.5
	0162		ID	Intradermal
	0162		IM	Intramuscular
	0162		IN	Intranasal
	0162		IV	Intravenous
	0162		PO	Oral
	0162		SC	Subcutaneous
	0162		TD	Transdermal
	0162		MP	Percutaneous (multiple puncture - Small Pox)
HL7	0162	Route of	(use in RXR-1)	Post HL7 2.5.1 Implementation Guide 1.5
	0162		C38238	Intradermal
	0162		C28161	Intramuscular
	0162		C38284	Nasal
	0162		C38276	Intravenous
	0162		C38288	Oral
	0162		C38299	Subcutaneous
	0162		C38305	Transdermal
	0162		C38676	Percutaneous (multiple puncture - Small Pox)
HL7	0163	Administrative	(use in RXR-2)	Pre HL7 2.5.1 Implementation Guide 1.5
	0163		BN	Bilateral Nares
	0163		LA	Left Arm
	0163		LD	Left Deltoid
	0163		LG	Left Gluteus Medius
	0163		LLFA	Left Lower Forearm
	0163		LN	Left Nares
	0163		LT	Left Thigh
	0163		LVL	Left Vastus Lateralis
	0163		MO	Mouth
	0163		RA	Right Arm
	0163		RD	Right Deltoid
	0163		RG	Right Gluteus Medius
	0163		RLFA	Right Lower Forearm
	0163		RN	Right Nares
	0163		RT	Right Thigh
	0163		RVL	Right Vastus Lateralis
HL7	0189	Ethnic Group	(use in PID-22)	
	0189		2135-2	Hispanic
	0189		2186-5	Non-Hispanic
User	0190	Address type	(use in PID-11; NK1-4)	
	0190		H	Home
	0190		O	Office
User	0200	Name type	(use in PID-5, 6; NK1-2)	
	0200		L	Legal name
	0200		M	Maiden name

User	0201	Telecommunication use code	(use in PID-13; NK1-5)	
	0201		PRN	Primary residence number
User	0202	Telecommunication	(use in PID-13; NK1-5)	
	0202		PH	Telephone
	0202		CP	Cellphone
HL7	0203	Identifier type	(use in PID-3)	
	0203		BR	Birth Registry Number
	0203		MA	Medicaid Number
	0203		MC	Medicare Number
	0203		MR	Medical Record Number
	0203		PI	Patient Internal Identifier
	0203		PN	Person Number
	0203		PRN	Provider Number
	0203		PT	Patient External Identifier
	0203		RRI	Regional Registry ID
	0203		SR	State Registry Identifier
	0203		SS	Social Security Number
User	0207	Processing mode	(use in MSH-11.2)	
	0207		A	Archive
	0207		R	Restore from archive
	0207		I	Initial load
	0207		T	Current processing, transmitted at intervals (scheduled or on demand)
HL7	0208	Query response	(find in QAK-2)	
	0208		OK	Data found, no errors present
	0208		TM	Too many candidates found
	0208		NF	No data found, no errors
	0208		AE	Application Error; query had formatting errors
	0208		AR	Application Reject; query was rejected
User	0212	Nationality	(use in PID-11; NK1-4)	
	0212		CA	Canada
	0212		US	United States of America
User	0215	Publicity Code	(use in PD1-11)	
	0215		01	No reminder/recall
	0215		02	Yes reminder/recall - any method
HL7	0227	Manufacturer Code	(use in RXA-17)	
	0227		AB	Abbott Laboratories
	0227		ACA	Acambis, Inc. [Inactive see sanofi pasteur]
	0227		AD	Adams Laboratories, Inc.
	0227		AKR	Akorn, Inc.
	0227		ALP	Alpha Therapeutic Corporation
	0227		AR	Armour [Inactive- use AVB]
	0227		AVB	Aventis Behring L.L.C. [Inactive - use ZLB]
	0227		AVI	Aviron
	0227		BRR	Barr Laboratories
	0227		BA	Baxter Healthcare Corporation [Inactive- use BAH]
	0227		BAH	Baxter Healthcare Corporation
	0227		BAY	Bayer
	0227		BP	Berna Products
	0227		BPC	Berna Products Corporation
	0227		BTP	Biotest Pharmaceuticals Corporation

	0227		MIP	Bioport Corporation (formerly Michigan BiologicProducts Institute)
	0227		CSL	CSL Biotherapies, Inc.
	0227		CNJ	Cangene Corporation
	0227		CMP	Celltech Medeva Pharmaceuticals [Inactive-use NOV]
	0227		CEN	Centeon [Inactive- use AVB]
	0227		CHI	Chiron Corporation [Inactive – use NOV] (includes PowderJect Pharmaceuticals, Celltech Medeva Vaccines and Evans Medical Limited)
	0227		CON	Connaught [Inactive- use PMC]
	0227		DVC	DynPort Vaccine Company, LLC
	0227		EVN	Evans Medical Limited [Inactive- use NOV]
	0227		GEO	GeoVax Labs, Inc.
	0227		SKB	GlaxoSmithKline (formerly SmithKline Beecham; includes SmithKline Beecham and Glaxo Wellcome)
	0227		GRE	Greer Laboratories Inc.
	0227		IAG	Immuno International AG [Inactive- use BAH]
	0227		IUS	Immuno-U.S., Inc.
	0227		INT	Intercell Biomedical
	0227		KGC	Korea Green Cross Corporation
	0227		LED	Lederle [Inactive-use WAL]
	0227		MBL	Massachusetts Biologic Laboratories (formerly Massachusetts Public Health Biologic Laboratories)
	0227		MA	Massachusetts Public Health Biologic Laboratories[Inactive-use MBL]
	0227		MED	MedImmune, Inc.
	0227		MSD	Merck & Co., Inc.
	0227		IM	Merieux [Inactive-use PMC]
	0227		MIL	Miles [Inactive-use BAY]
	0227		NAB	NABI (formerly North American Biologicals, Inc.)
	0027		NYB	New York Blood Center
	0227		NAV	North American Vaccine, Inc. [Inactive-use BAH]
	0227		NOV	Novartis Pharmaceutical Corp
	0227		NVX	Novavax, Inc.
	0227		OTC	Organon Teknika Corporation
	0227		ORT	Ortho-clinical Diagnostics (formerly Ortho Diagnostic Systems, Inc.)
	0227		PD	Parkedale Pharmaceuticals (formerly Parke-Davis)
	0227		PFR	Pfizer-Wyeth
	0227		PWJ	PowerJect Pharmaceuticals [Inactive- use NOV]
	0227		PRX	Praxis Biologics [Inactive- use WAL]
	0227		PMC	Sanofi Pasteur Inc.
	0227		JPN	Osaka University
	0227		SCL	Sclavo, Inc.
	0227		SOL	Solvay Pharmaceuticals
	0227		SI	Swiss Serum and Vaccine Inst. [Inactive-use BPC]
	0227		TAL	Talecris Biotherapeutics
	0227		USA	United States Army Medical Research and Material Command
	0227		VXG	VaxGen
	0227		WA	Wyeth-Ayerst [Inactive- use WAL]

	0227		WAL	Wyeth-Ayerst [Inactive]
	0227		ZLB	ZLB Behring
	0227		OTH	Other manufacturer
	0227		UNK	Unknown manufacturer
User	0289	County (Iowa only)	(use in PID-11; NK1-4)	
	0289		IA001	Adair
	0289		IA003	Adams
	0289		IA005	Allamakee
	0289		IA007	Appanoose
	0289		IA009	Audubon
	0289		IA011	Benton
	0289		IA013	Black Hawk
	0289		IA015	Boone
	0289		IA017	Bremer
	0289		IA019	Buchanan
	0289		IA021	Buena Vista
	0289		IA023	Butler
	0289		IA025	Calhoun
	0289		IA027	Carroll
	0289		IA029	Cass
	0289		IA031	Cedar
	0289		IA033	Cerro Gordo
	0289		IA035	Cherokee
	0289		IA037	Chickasaw
	0289		IA039	Clarke
	0289		IA041	Clay
	0289		IA043	Clayton
	0289		IA045	Clinton
	0289		IA047	Crawford
	0289		IA049	Dallas
	0289		IA051	Davis
	0289		IA053	Decatur
	0289		IA055	Delaware
	0289		IA057	Des Moines
	0289		IA059	Dickinson
	0289		IA061	Dubuque
	0289		IA063	Emmet
	0289		IA065	Fayette
	0289		IA067	Floyd
	0289		IA069	Franklin
	0289		IA071	Fremont
	0289		IA073	Greene
	0289		IA075	Grundy
	0289		IA077	Guthrie
	0289		IA079	Hamilton
	0289		IA081	Hancock
	0289		IA083	Hardin
	0289		IA085	Harrison
	0289		IA087	Henry
	0289		IA089	Howard
	0289		IA091	Humboldt
	0289		IA093	Ida
	0289		IA095	Iowa
	0289		IA097	Jackson
	0289		IA099	Jasper
	0289		IA101	Jefferson
	0289		IA103	Johnson
	0289		IA105	Jones
	0289		IA107	Keokuk

	0289		IA109	Kossuth
	0289		IA111	Lee
	0289		IA113	Linn
	0289		IA115	Louisa
	0289		IA117	Lucas
	0289		IA119	Lyon
	0289		IA121	Madison
	0289		IA123	Mahaska
	0289		IA125	Marion
	0289		IA127	Marshall
	0289		IA129	Mills
	0289		IA131	Mitchell
	0289		IA133	Monona
	0289		IA135	Monroe
	0289		IA137	Montgomery
	0289		IA139	Muscatine
	0289		IA141	O'Brien
	0289		IA143	Osceola
	0289		IA145	Page
	0289		IA147	Palo Alto
	0289		IA149	Plymouth
	0289		IA151	Pocahontas
	0289		IA153	Polk
	0289		IA155	Pottawattamie
	0289		IA157	Poweshiek
	0289		IA159	Ringgold
	0289		IA161	Sac
	0289		IA163	Scott
	0289		IA165	Shelby
	0289		IA167	Sioux
	0289		IA169	Story
	0289		IA171	Tama
	0289		IA173	Taylor
	0289		IA175	Union
	0289		IA177	Van Buren
	0289		IA179	Wapello
	0289		IA181	Warren
	0289		IA183	Washington
	0289		IA185	Wayne
	0289		IA187	Webster
	0289		IA189	Winnebago
	0289		IA191	Winneshiek
	0289		IA193	Woodbury
	0289		IA195	Worth
	0289		IA197	Wright
HL7	0292	Codes for Vaccines administered	(use in RXA-5)	
	0292			Please refer to the IRIS vaccine code document on the IRIS website.
HL7	0322	Completion Status	(use in RXA-20)	
	0322		CP	Complete
	0322		RE	Refused
	0322		NA	Not Administered
	0322		PA	Partially Administered ("sub potent?" dose)
HL7	0323	Action code	(use in RXA-21)	
	0323		A	Add
	0323		D	Delete

	0323		U	Update
HL7	0357	Message error status code	(find in ERR-1)	
	0357		0	Message accepted
	0357		100	Segment sequence error
	0357		101	Required field missing
	0357		102	Invalid data value
	0357		103	Table value not found
	0357		104	Required Segment missing
	0357		105	Invalid data value
	0357		200	Unsupported message type
	0357		201	Unsupported event code
	0357		202	Unsupported processing ID
	0357		203	Unsupported version ID
	0357		204	Unknown key identifier
	0357		205	Duplicate key identifier
	0357		206	Application record locked
	0357		207	Application internal error
	0357		500	Record not released
User	0363	Assigning Authority	(use in PID-3.4)	
	0363		IAA	Iowa
User	0441	Immunization Registry Status	(use in PD1-16)	
	0441		A	Active
	0441		I	Inactive-Other
	0441		M	Inactive-MOGE
	0441		O	Inactive-One Time Only
User	0471	Query Name	(use in QAK-3)	
	0471		Z34	Request Immunization History
	0471		Z44	Request Evaluated History and Forecast
HL7	0516	Severity	(find in ERR-4)	
	0516		W	Warning - Transaction successful, but there may be issues. These may include non-fatal errors with potential for loss of data.
	0516		I	Information - Transaction successful, but includes returned information.
	0516		E	Error - Transaction was not successful.
HL7	0533	Application Error Code	(find in ERR-5)	
	0533		1	Date conflicts with another date in the message.
	0533		2	Date is not valid or lacks required precision.
	0533		3	The value conflicts with other data in the message
	0533		4	The value is not valid. This applies for fields not associated with a table of values.
	0533		5	The value is not found in the associated table.
	0533		6	A required observation, such as VFC eligibility status, is missing.
NIP	NIP001	Immunization Inflammation	(use in RXA-9)	
	NIP001		00	New Immunization Administered (by Sending Organization)
	NIP001		01	Source Unspecified
	NIP001		02	Other Provider
	NIP001		03	Parent Written Record

	NIP001		04	Parent Recall
	NIP001		05	Other Registry
	NIP001		06	Birth Certificate
	NIP001		07	School Record
	NIP001		OU	Outside USA
NIP	NIP002	Substance Refusal	(use in RXA-18)	
	NIP002		00	Parental Refusal
	NIP002		01	Religious Exemption
LN	NIP003	Observation Identifiers	(use in OBX-3)	Vaccine Funding Program Eligibility Category
	NIP003		64994-7	Vaccines eligibility code
LN	NIP003	Observation	(use in OBX-3)	Vaccine Funding Source
	NIP003		30963-3	Vaccines purchased with
LN	NIP003	Observation Identifiers	(use in OBX-3)	Contraindications, Precautions, Indications and Immunities
	NIP003		30945-0	Vaccination contraindication/precaution
	NIP003		31044-1	Reaction
	NIP003		30949-2	Vaccination adverse event outcome
	NIP003		59784-9	Disease with presumed immunity
	NIP003		75505-8	Diseases with serological evidence of immunity
LN	NIP003	Observation Identifiers	(use in OBX-3)	Query Response Pre Implementation Guide 1.5
	NIP003		30979-9	Vaccine due next
	NIP003		30980-7	Date vaccine due
	NIP003		30973-2	Dose number in series
	NIP003		30981-5	Earliest date to give
	NIP003		30982-3	Reason applied by forecast logic to project this vaccine
LN	NIP003	Observation Identifiers	(use in OBX-3)	Query Response Post Implementation Guide 1.5
	NIP003		30956-7	Vaccine type
	NIP003		59779-9	Immunization schedule used
	NIP003		30973-2	Dose number in series
	NIP003		59782-3	Number of doses in series
	NIP003		30981-5	Earliest date to give
	NIP003		30980-7	Date vaccine due
	NIP003		59778-1	Date dose is overdue
LN	NIP003	Observation Identifiers	(use in OBX-3)	Vaccine Information Statement (VIS) Dates
	NIP003		69764-9	Document type
	NIP003		29768-9	Date vaccine information statement published
	NIP003		29769-7	Date vaccine information statement presented
NIP	NIP004	Contraindications,	(use in OBX-5)	Pre Implementation Guide 1.5 values
	NIP004		03	Allergy to baker's yeast (anaphylactic)
	NIP004		04	Allergy to egg ingestion (anaphylactic)
	NIP004		05	Allergy to gelatin (anaphylactic)
	NIP004		LTX_A	Allergy to latex (anaphylactic)
	NIP004		06	Allergy to neomycin (anaphylactic)
	NIP004		PLYB_A	Allergy to POLYMYXIN B
	NIP004		07	Allergy to streptomycin (anaphylactic)
	NIP004		08	Allergy to thimerosal (anaphylactic)
	NIP004		09	Allergy to previous dose of this vaccine or to any of its unlisted vaccine components (anaphylactic)
	NIP004		10	Anaphylactic (life-threatening) reaction to previous dose of this vaccine
	NIP004		ARTHUS	Arthus type reaction to previous dose of tetanus containing vaccine.

	NIP004		11	Collapse or shock like state within 48 hours of previous dose of DTP/DTaP
	NIP004		12	Convulsions (fits, seizures) within 3 days of previous dose of DTP/DTaP
	NIP004		13	Persistent, inconsolable crying lasting 3 hours within 48 hours of previous dose of DTP/DTaP
	NIP004		14	Current diarrhea, moderate to severe
	NIP004		15	Encephalopathy within 7 days of previous dose of DTP
	NIP004		16	Current fever with moderate-to-severe illness
	NIP004		17	Fever of 40.5 C (105 F) within 48 hours of previous dose of DTP/DTaP
	NIP004		18	Gullain-Barre syndrome (GBS) within 6 weeks of previous dose of DTP/DTaP
	NIP004		18A	History of Gullain-Barre syndrome (GBS)
	NIP004		33A	History of Varicella
	NIP004		21	Current acute illness, moderate to severe (with or without fever) (e.g. diarrhea, otitis media, vomiting)
	NIP004		22	Chronic illness (e.g. chronic gastrointestinal disease)
	NIP004		23	Immune globulin (IG) administration, recent or simultaneous
	NIP004		24	Immunity: diphtheria
	NIP004		HEPA_I	Immunity: hepatitis A
	NIP004		25	Immunity: Haemophilus influenzae type B (Hib)
	NIP004		26	Immunity: hepatitis B
	NIP004		27	Immunity: measles
	NIP004		28	Immunity: mumps
	NIP004		29	Immunity: pertussis
	NIP004		30	Immunity: poliovirus
	NIP004		31	Immunity: rubella
	NIP004		32	Immunity: tetanus
	NIP004		33	Immunity: varicella (chicken pox)
	NIP004		OTH_I	Immunity: other lab confirmed
	NIP004		36	Immunodeficiency (hematologic and solid tumors, congenital immunodeficiency, long-term immunosuppressive therapy, including steroids) (in recipient)
	NIP004		36A	Temporary immunodeficiency caused by immunosuppressive therapy, including steroids, radiation treatment or chemotherapy.
	NIP004		37	Neurologic disorders, underlying (including seizure disorders, cerebral palsy, and developmental delay)
	NIP004		38	Otitis media (ear infection) moderate to severe (with or without fever)
	NIP004		39	Pregnancy (in recipient)
	NIP004		40	Thrombocytopenia
	NIP004		41	Thrombocytopenic purpura (history)
	NIP004		RABEXP	Patient has been exposed to Rabies
	NIP004		HIRISK	High Risk Condition(s)
	NIP004		10_11	PRIOR doses OF HEPA caused anaphylactic reaction
	NIP004		10_12	PRIOR doses OF HEPB caused anaphylactic reaction
	NIP004		10_129	PRIOR doses OF ZOSTER caused anaphylactic reaction

	NIP004		10_13	PRIOR doses OF HIB caused anaphylactic reaction
	NIP004		10_130	PRIOR doses OF HUMAN PAPILLOMA VIRUS caused anaphylactic reaction
	NIP004		10_16	PRIOR doses OF MENINGO caused anaphylactic reaction
	NIP004		10_17	PRIOR doses OF MMR caused anaphylactic reaction
	NIP004		10_19	PRIOR doses OF PNEUMOCONJUGATE caused anaphylactic reaction
	NIP004		10_20	PRIOR doses OF POLIO caused anaphylactic reaction
	NIP004		10_23	PRIOR doses OF ROTAVIRUS caused anaphylactic reaction
	NIP004		10_24	PRIOR doses OF TYPHOID caused anaphylactic reaction
	NIP004		10_26	PRIOR doses OF VARICELLA caused anaphylactic reaction
	NIP004		10_27	PRIOR doses OF YELLOW FEVER caused anaphylactic reaction
	NIP004		10_31	PRIOR doses OF TETANUS caused anaphylactic reaction
	NIP004		10_34	PRIOR doses OF PNEUMOPOLY 23 caused anaphylactic reaction
	NIP004		10_48	PRIOR doses OF IG-RSV IGIM caused anaphylactic reaction
	NIP004		10_6	PRIOR doses OF TD/TDAP caused anaphylactic reaction
	NIP004		10_7	PRIOR doses OF DTAP caused anaphylactic reaction
	NIP004		10_8	PRIOR doses OF ENCEPHALITIS caused anaphylactic reaction
	NIP004		10_9	PRIOR doses OF INFLUENZA caused anaphylactic reaction
NIP	NIP004	Contraindications, Precautions,	(use in OBX-5)	Post Implementation Guide 1.5 values
	NIP004		38907003	History of Varicella infection.
	NIP004		278971009	Immunity Hep A
	NIP004		271511000	Immunity Hep B
	NIP004		371111005	Immunity Measles
	NIP004		341112003	Immunity Mumps
	NIP004		278968001	Immunity Rubella
	NIP004		371113008	Immunity Varicella
	NIP004		39579001	Anaphylactic reaction
	NIP004		VXC10	Hypotonic-hyporesponsive collapse within 48
	NIP004		VXC11	Seizure occurring within 3 days of immunization
	NIP004		VXC9	Persistent crying lasting >= 3 hours within 48 hours of immunization
	NIP004		VXC12	Temperature >= 105 (40.5 C) within 48 hours of immunization
	NIP004		VXC18	Allergy to baker's yeast
	NIP004		91930004	Allergy to egg ingestion
	NIP004		294847001	Allergy to gelatin
	NIP004		300916003	Allergy to latex
	NIP004		294468006	Allergy to neomycin
	NIP004		294530006	Allergy to POLYMYXIN B
	NIP004		294466005	Allergy to streptomycin
	NIP004		VXC19	Allergy to thimerosal
	NIP004		VXC25	Arthus type reaction to previous dose of tetanus containing vaccine

	NIP004		27624003	Chronic Health Condition
	NIP004		VXC24	Current acute illness, moderate to severe (with or without fever) (e.g. diarrhea, vomiting)
	NIP004		VXC22	Encephalopathy within 7 days of previous dose of DTP or DTaP
	NIP004		VXC7	Rabies exposure within previous 10 days
	NIP004		VXC27	Permanent immunodeficiency due to any cause
	NIP004		77386006	Pregnancy (in recipient)
	NIP004		302215000	Thrombocytopenia
	NIP004		VXC26	Underlying unstable, evolving neurologic
	NIP004		VXC16	Immunization schedule used
NIP	NIP005	Event	(use in OBX-5)	Pre HL7 2.5.1 Implementation Guide 1.5
	NIP005		D	Patient Died
	NIP005		L	Life threatening illness
	NIP005		E	Required emergency room/doctor visit
	NIP005		H	Required hospitalization
	NIP005		P	Resulted in prolongation of hospitalization
	NIP005		J	Resulted in permanent disability
NIP	NIP008	Funding Type	(use in OBX-5)	Pre HL7 2.5.1 Implementation Guide 1.5
	NIP008		PBF	Public Funding
	NIP008		PVF	Private Funding
NIP	NIP008	Funding Type	(use in OBX-5)	Post HL7 2.5.1 Implementation Guide 1.5
	NIP008		PHC70	Private Funding
	NIP008		VXC50	Public Funds
	NIP008		VXC51	Public Funds
	NIP008		VXC52	Public Funds
IRIS	IA001	Reaction Codes	(use in OBX-5)	Pre HL7 2.5.1 Implementation Guide 1.5
	IA001		10	Anaphylactic reaction
	IA001		11	Hypotonic-hyporesponsive collapse within 48 hours of immunization
	IA001		12	Seizure occurring within 3 days of immunization
	IA001		13	Persistent crying lasting >= 3 hours within 48 hours of immunization
	IA001		17	Temperature >= 105 (40.5 C) within 48 hours of immunization
	IA001		PERTCONT	Pertussis allergic reaction
	IA001		TETCONT	Tetanus allergic reaction
IRIS	IA002	Vaccine Eligibility	(use in OBX-5)	
	IA002		V01	Q - Not VFC Eligible
	IA002		V02	M - Medicaid Enrolled
	IA002		V03	N- No Insurance
	IA002		V04	A-American Indian/Alaska Native
	IA002		V05	U- Underinsured
IRIS	IA003	State Code	(use in PID-11; NK1-4)	
	IA003		AL	ALABAMA
	IA003		AK	ALASKA
	IA003		AZ	ARIZONA
	IA003		AR	ARKANSAS
	IA003		CA	CALIFORNIA
	IA003		CO	COLORADO
	IA003		CT	CONNECTICUT
	IA003		DE	DELAWARE
	IA003		DC	DISTRICT OF COLUMBIA
	IA003		FL	FLORIDA
	IA003		GA	GEORGIA
	IA003		OK	OKLAHOMA
	IA003		HI	HAWAII
	IA003		ID	IDAHO

	IA003		IL	ILLINOIS
	IA003		IN	INDIANA
	IA003		IA	IOWA
	IA003		KS	KANSAS
	IA003		KY	KENTUCKY
	IA003		LA	LOUISIANA
	IA003		ME	MAINE
	IA003		MD	MARYLAND
	IA003		MA	MASSACHUSETTS
	IA003		MI	MICHIGAN
	IA003		MN	MINNESOTA
	IA003		MS	MISSISSIPPI
	IA003		MO	MISSOURI
	IA003		MT	MONTANA
	IA003		NE	NEBRASKA
	IA003		NV	NEVADA
	IA003		NH	NEW HAMPSHIRE
	IA003		NJ	NEW JERSEY
	IA003		NM	NEW MEXICO
	IA003		NY	NEW YORK
	IA003		NC	NORTH CAROLINA
	IA003		ND	NORTH DAKOTA
	IA003		OH	OHIO
	IA003		OR	OREGON
	IA003		PA	PENNSYLVANIA
	IA003		RI	RHODE ISLAND
	IA003		SC	SOUTH CAROLINA
	IA003		SD	SOUTH DAKOTA
	IA003		TN	TENNESSEE
	IA003		TX	TEXAS
	IA003		UT	UTAH
	IA003		VA	VIRGINIA
	IA003		WA	WASHINGTON
	IA003		WV	WEST VIRGINIA
	IA003		WI	WISCONSIN
	IA003		WY	WYOMING
	IA003		AS	AMERICAN SAMOA
	IA003		FM	FEDERATED STATES OF MICRONESIA
	IA003		GU	GUAM
	IA003		MH	MARSHALL ISLANDS
	IA003		MP	NORTHERN MARIANA ISLANDS
	IA003		PW	PALAU
	IA003		PR	PUERTO RICO
	IA003		UM	US MINOR OUTLYING ISLANDS
	IA003		VI	US VIRGIN ISLANDS
	IA003		VT	VERMONT
HL7	CVX (0292)	Vaccines Administered	(use in RXA-5)	See IRIS Vaccine Codes PDF or Spreadsheet
HL7	CPT	Current Procedural Code	(use in RXA-5)	See IRIS Vaccine Codes PDF or Spreadsheet
IRIS	WVGC	Vaccine Group Code	(use in RXA-5)	See IRIS Vaccine Codes PDF or Spreadsheet
IRIS	WVTN	Vaccine Trade Name	(use in RXA-5)	See IRIS Vaccine Codes PDF or Spreadsheet
IRIS	NDC	National Drug Code	(use in RXA-5)	See IRIS Vaccine Codes PDF or Spreadsheet

Appendix C – Vaccine Codes

Please see the IRIS Vaccine Codes PDF or Spreadsheet for a listing of vaccine codes including: CVX Code, CPT Code, NDC Code, Trade Name, and Vaccine Group.

Change History

Published / Revised Date	Version #	Author	Section / Nature of Change
06/25/2010	1.0	HP	Initial approved version.
07/29/2010	1.1	HP	Correction. OBX Example 3 LOINC code is 30949-2. OBX Example 4 LOINC code is 30963-3.
10/01/2010	1.2	HP	Pg 5 – carriage return/line feed Pg 24 – Update bi-directional image to display VXU sent from Registry to Provider Application Pg 36 – Two Relationships removed =OWN' and =TRN'
3/25/2011	1.3	HP	Merged "General" and "Real-time" specifications into this one document. Also added Web Services related information.
5/3/2011	1.4	HP	Applied changes to HL7-defined Table 0227 – Manufacturers of Vaccines. Changes per Change Request (CR) CR10010.
5/9/2011	1.5	HP	Applied changes per OHA review and added "Master Field List"
7/1/2011	1.6	HP OHA	Document has gone through additional OHA reviews and changes as well as an HP internal review.
11/4/2011	1.7	OHA	Clarified references to HL7 versions 2.3.1 and 2.4
4/23/2012	1.8	HP	Added funding type OBX segment, updated Table IA002.
4/30/2012	1.9	HP	Formatting overhaul. Rebuilt links, table of contents, and unified theme settings. Removed references to unsupported QRD and QRF fields and other legacy HL7 documentation. Added to and clarified sections on data type and exchanges.
05/07/2012	1.10	HP	Deleted: Note 2: Sending ADT and VXU messages for the same patient is redundant, since the VXU message is capable of reporting all information found in the ADT. Reason: ADT and VXU messages are different. ADT messages are reserved for only updating patient demographics and VXU messages can also update patient demographics but require a RXA segment as well. IRIS can accept both types of messages but prefers VXU. Changes were made to the XTN data type section
05/14/2012	2.0	HP	Approved Version
04/25/2013	2.1	HP	Modified OBX Example 4 for Vaccine Eligibility Code and Table NIP003
05/02/2013	2.2	HP	Deleted the verbiage below from page 4 as it is no longer applicable: PHIN-MS will be supported in the initial IRIS release in Spring 2012. IRIS will have the capability to receive and send HL7 2.5.1 messages by Fall 2012.
11/22/2013	2.3	HP	Corrected PD1-11 info on page 26. This field is not required.